aiwa SERVICE

TV-2010 NH

SERVICE MANUAL

COLOR TEREVISION

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• Replace this Service Manual with ”Revision Publishing” when it is issued.

aiwa

S/M Code No. 09-003-340-3T1

SIMPLE DATA

ELECTRICAL MAIN PARTS LIST -1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC			
	87-A20-364-010		IC,KIA7809PI
	87-027-666-010		IC,TC4052BP
	87-A20-312-010		IC,M62420SP
	87-070-237-010		IC,LA7832
	87-A30-041-110		TR,SE115N
	87-A20-611-080		IC,M51943BSL-700A
	8Z-JAD-621-010		IC,M37272M8-165SP
	87-A91-538-010		RCR UNIT,SBX1981-72P
	87-A21-433-010		IC,KS24C041I
	87-A21-299-010		IC,LA6458SLL
	8Z-JBJ-605-010		IC,TA1268N
	87-002-421-010		IC,NJM2233BL
	87-A21-283-010		IC,AN5277
	87-A21-259-010		IC,MM1454XD
	87-A21-169-010		IC,MM1124B
	87-A21-345-010		IC,NJM2150
	87-A21-344-010		IC,STR-F6656
TRANSISTOR			
	89-337-794-580		TR,2SC3779 D/E
	87-A30-091-080		FET,2SJ460
	87-A30-114-080		TR,2SD1207T
	89-208-922-380		TR,2SB892 ST
	87-026-269-080		TR,DTA114ES
	89-327-854-080		TR,2SC2785F
	89-111-755-080		TR,2SA1175F
	87-A30-121-080		TR,DTC 323 TS
	87-A30-090-080		FET,2SK2541
	87-A30-176-010		TR,2SC1573A P/Q/R
	89-320-012-080		TR,2SC2001L
	87-A30-095-010		TR,2SD2333LS/C202
DIODE			
	87-017-654-060		DIODE,GBU6JL6131
	87-070-111-060		DIODE,RU30A
	87-017-352-090		DIODE,RU3YX
	87-070-112-060		DIODE,RU4YX
	87-017-931-080		ZENER,MTZJ5.6B
	87-002-743-080		ZENER,MTZJ 33B
	87-070-136-080		ZENER,MTZJ5.1B
	87-A40-523-080		ZENER,MTZJ9.1B
	87-A40-348-080		ZENER,MTZJ3.3A
	87-020-465-080		DIODE,1SS133 (110MA)
	87-A40-286-080		DIODE,RGP10JE-5025
	87-070-274-080		DIODE,1N4003 SEM
	87-017-932-080		ZENER,MTZJ6.2B
	87-A40-450-090		DIODE,RU 1P
	87-A40-611-080		ZENER,MTZJ3.9B
	87-A40-249-080		ZENER,MTZJ 15A
MAIN C.B			
BT301	87-JBC-625-010		CONN ASSY,5P V WHT TV-NK
BT401	8Z-JAE-615-110		CONN ASSY,4P V GRAY JK
BT601	87-JBC-626-010		CONN ASSY,4P V WHT TV-NK
C1	87-016-624-080		CAP,E 10-16 SSL
C2	87-018-134-080		CAPACITOR,TC-U 0.01-16
C3	87-018-134-080		CAPACITOR,TC-U 0.01-16
C5	87-016-633-080		CAP,E 1-50 SSL
C6	87-018-134-080		CAPACITOR,TC-U 0.01-16
C7	87-016-621-080		CAP,E 220-10 SSL
C10	87-018-119-080		CAP, CER 100P-50V
C15	87-018-123-080		CAP, CER 220P-50V
C16	87-016-633-080		CAP,E 1-50 SSL
C17	87-018-131-080		CAP, CER 1000P-50V
C18	87-018-128-080		CAP, CERA-SOL SS 560P
C19	87-016-629-080		CAP,E 0.1-50 SSL
C21	87-018-115-080		CAP, CER 47P-50V
C22	87-018-115-080		CAP, CER 47P-50V
C23	87-018-125-080		CAP, CER 330P-50V
C24	87-018-131-080		CAP, CER 1000P-50V
C25	87-016-629-080		CAP,E 0.1-50 SSL
C28	87-018-117-080		CAP,TC-U 68P-50 SL
C29	87-018-117-080		CAP,TC-U 68P-50 SL
C101	87-016-636-080		CAP,E 4.7-50 SSL
C104	87-016-621-080		CAP,E 220-10 SSL
C106	87-A10-576-010		CAP,CER 0.01-50 Z YF
C110	87-018-134-080		CAPACITOR,TC-U 0.01-16
C111	87-018-134-080		CAPACITOR,TC-U 0.01-16
C201	87-018-134-080		CAPACITOR,TC-U 0.01-16
C202	87-018-134-080		CAPACITOR,TC-U 0.01-16
C203	87-016-632-080		CAP,E 0.47-50 SSL
C204	87-018-134-080		CAPACITOR,TC-U 0.01-16
C205	87-016-577-080		CAP,E 470-16 SSL
C207	87-016-632-080		CAP,E 0.47-50 SSL
C208	87-018-134-080		CAPACITOR,TC-U 0.01-16
C209	87-016-576-080		CAP,E 330-16 SSL
C210	87-018-115-080		CAP, CER 47P-50V
C211	87-A11-080-080		CAP,TC U 47P-50 J CH
C214	87-016-627-080		CAP,E 47-16 SSL
C251	87-018-134-080		CAPACITOR,TC-U 0.01-16
C252	87-016-574-080		CAP,E 100-16 SSL
C253	87-A10-112-080		CAP,E 100-10 SSL
C254	87-015-464-080		CAP,E 4.7-16 BP
C255	87-015-464-080		CAP,E 4.7-16 BP
C301	87-016-624-080		CAP,E 10-16 SSL
C302	87-016-624-080		CAP,E 10-16 SSL
C303	87-016-624-080		CAP,E 10-16 SSL
C304	87-016-637-080		CAP,E 10-50 SSL
C305	87-018-134-080		CAPACITOR,TC-U 0.01-16
C306	87-016-574-080		CAP,E 100-16 SSL
C308	87-016-632-080		CAP,E 0.47-50 SSL
C310	87-018-119-080		CAP, CER 100P-50V
C311	87-A11-148-080		CAP,TC U 0.1-50 Z F
C312	87-A11-148-080		CAP,TC U 0.1-50 Z F
C313	87-A11-148-080		CAP,TC U 0.1-50 Z F
C314	87-018-134-080		CAPACITOR,TC-U 0.01-16
C315	87-018-131-080		CAP, CER 1000P-50V
C316	87-016-634-080		CAP,E 2.2-50 SSL
C317	87-016-634-080		CAP,E 2.2-50 SSL
C318	87-018-134-080		CAPACITOR,TC-U 0.01-16
C319	87-016-575-080		CAP,E 220-16 SSL
C320	87-016-587-090		CAP,E 1000-25 M SSL
C321	87-016-636-080		CAP,E 4.7-50 SSL
C323	87-016-625-080		CAP,E 22-16 SSL
C324	87-016-632-080		CAP,E 0.47-50 SSL
C328	87-016-624-080		CAP,E 10-16 SSL
C330	87-016-633-080		CAP,E 1-50 SSL
C332	87-018-134-080		CAPACITOR,TC-U 0.01-16
C333	87-018-125-080		CAP, CER 330P-50V
C334	87-018-134-080		CAPACITOR,TC-U 0.01-16
C335	87-016-574-080		CAP,E 100-16 SSL
C336	87-A11-148-080		CAP,TC U 0.1-50 Z F
C338	87-016-632-080		CAP,E 0.47-50 SSL
C342	87-010-529-080		CAP,E 1-50 BP
C343	87-018-131-080		CAP, CER 1000P-50V

ELECTRICAL MAIN PARTS LIST -2

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C344	87-A11-080-080		CAP,TC U 47P-50 J CH
C346	87-016-622-080		CAP,E 470-10 SSL
C348	87-018-126-080		CAP,TC-U 390P-50 B
C401	87-018-134-080		CAPACITOR,TC-U 0.01-16
C402	87-016-627-080		CAP,E 47-16 SSL
!C403	87-010-399-090		CAP,E 3300-35 SME
C404	87-018-134-080		CAPACITOR,TC-U 0.01-16
C405	87-018-134-080		CAPACITOR,TC-U 0.01-16
C406	87-018-134-080		CAPACITOR,TC-U 0.01-16
C407	87-016-627-080		CAP,E 47-16 SSL
C408	87-016-574-080		CAP,E 100-16 SSL
C409	87-016-625-080		CAP,E 22-16 SSL
C410	87-016-624-080		CAP,E 10-16 SSL
C411	87-016-624-080		CAP,E 10-16 SSL
C412	87-016-624-080		CAP,E 10-16 SSL
C413	87-016-624-080		CAP,E 10-16 SSL
C414	87-016-624-080		CAP,E 10-16 SSL
C415	87-016-633-080		CAP,E 1-50 SSL
C416	87-016-633-080		CAP,E 1-50 SSL
C417	87-018-134-080		CAPACITOR,TC-U 0.01-16
C418	87-016-624-080		CAP,E 10-16 SSL
C419	87-A10-112-080		CAP,E 100-10 SSL
C428	87-016-627-080		CAP,E 47-16 SSL
C429	87-016-627-080		CAP,E 47-16 SSL
C430	87-018-134-080		CAPACITOR,TC-U 0.01-16
C435	87-016-627-080		CAP,E 47-16 SSL
C436	87-018-134-080		CAPACITOR,TC-U 0.01-16
C437	87-016-624-080		CAP,E 10-16 SSL
C440	87-016-627-080		CAP,E 47-16 SSL
C444	87-016-633-080		CAP,E 1-50 SSL
C445	87-016-591-080		CAP,E 100-35 SSL
C447	87-016-633-080		CAP,E 1-50 SSL
C449	87-016-588-090		CAP,E 2200-25 SSL
C450	87-016-588-090		CAP,E 2200-25 SSL
C453	87-016-574-080		CAP,E 100-16 SSL
C454	87-016-624-080		CAP,E 10-16 SSL
C455	87-016-624-080		CAP,E 10-16 SSL
C459	87-015-464-080		CAP,E 4.7-16 BP
C460	87-015-464-080		CAP,E 4.7-16 BP
C465	87-018-134-080		CAPACITOR,TC-U 0.01-16
C466	87-016-624-080		CAP,E 10-16 SSL
C473	87-018-118-080		CAP,TC-U 82P-50 B
C474	87-018-118-080		CAP,TC-U 82P-50 B
C475	87-018-117-080		CAP,TC-U 68P-50 SL
C476	87-018-117-080		CAP,TC-U 68P-50 SL
C477	87-015-464-080		CAP,E 4.7-16 BP
C478	87-015-464-080		CAP,E 4.7-16 BP
C487	87-016-633-080		CAP,E 1-50 SSL
C488	87-016-633-080		CAP,E 1-50 SSL
C495	87-018-115-080		CAP, CER 47P-50V
C496	87-018-115-080		CAP, CER 47P-50V
C502	87-A10-831-080		CAP,E 1000-25 M SMG
C503	87-016-633-080		CAP,E 1-50 SSL
C504	87-016-633-080		CAP,E 1-50 SSL
C508	87-A10-469-080		CAP,CER 2200P-500 K B DD10
C510	87-018-131-080		CAP, CER 1000P-50V
C511	87-016-591-080		CAP,E 100-35 SSL
C601	87-016-644-080		CAP,E 10-100 SSL
C604	87-016-593-080		CAP,E 470-35 M SSL
C606	87-A10-675-090		CAP,M/P 0.56-250 J
C608	87-A10-833-010		CAP,CER 1000P-2K K R LONG
C609	87-A11-047-090		CAP,M/P 8200P-1.25 H PHS
!C610	87-010-974-080		CAP,CER 220P-500 B
!C611	87-010-974-080		CAP,CER 220P-500 B
C612	87-016-624-080		CAP,E 10-16 SSL
C615	87-016-215-080		CAP,E 1-160 M TWSS
C616	87-A10-833-010		CAP,CER 1000P-2K K R LONG
!C801	87-A10-688-090		CAP,M/P 0.22-275 K (B81133)
!C803	87-A10-517-010		CAP,CER 3300P-4K M E KX
!C804	87-A10-517-010		CAP,CER 3300P-4K M E KX
C805	87-016-633-080		CAP,E 1-50 SSL
C806	87-A11-825-010		CAP,CER 120P-2K J SL
C807	87-018-127-080		CAP, CER 470P-50V
!C808	87-A11-992-090		CAP,E 330-400 105 KMH
C810	87-016-628-080		CAP,E 10-25 SSL
C811	87-016-582-080		CAP,E 47-25 SSL
C812	87-A11-302-090		CAP,M/P 0.01-630 J ECQF6(ZH)
C814	87-018-130-080		CAP,TC-U 820P-50 B
C815	- - -		CAP,CER 470P-2K K R
C816	87-A10-731-090		CAP,E 220-160 M KMF
!C817	87-A10-688-090		CAP,M/P 0.22-275 K (B81133)
C819	87-016-587-090		CAP,E 1000-25 M SSL
C821	87-010-446-010		CAP,E 2200-35 KME
C822	- - -		CAP,CER 1000P-1K KB
C827	87-016-587-090		CAP,E 1000-25 M SSL
C830	87-A11-824-010		CAP,CER 100P-2K J SL
C831	- - -		CAP,CER 330P-2K KR
CF201	84-LB3-626-010		FLTR,TPS4.5MB2
CF202	87-008-574-080		FLTR,SFSH4.5MCB
CN1	87-009-195-010		CONN,5P B5BEH
CN401	87-049-469-010		CONN,4P V
CN601	87-A60-933-010		CONN,4P V B04(5-3)B-DVS-L
CN604	87-A60-485-010		CONN,2P V LV GRA
!CN801	87-099-674-010		CONN,2P VA V
!CN802	82-481-649-010		PLUG,2P MINI(*)
CNA401	87-JB8-601-010		CONN ASSY,4P SP-20
D1	87-070-110-010		LED,SLP-181B-51
D810	87-A90-965-010		VRIS,TNR15G471K
!F801	87-035-192-010		FUSE, 4AT
FB801	87-003-320-080		F-BEAD,FBR07HA121NB
FB803	87-003-320-080		F-BEAD,FBR07HA121NB
FB804	87-003-320-080		F-BEAD,FBR07HA121NB
FB805	87-003-320-080		F-BEAD,FBR07HA121NB
FB806	87-003-320-080		F-BEAD,FBR07HA121NB
FB807	87-003-320-080		F-BEAD,FBR07HA121NB
!FC801	87-033-213-080		CLAMP, FUSE
!FC802	87-033-213-080		CLAMP, FUSE
FR601	87-A00-063-060		RES,FUSE 2.2-1/2W J R-TYPE
FR602	87-A00-055-060		RES,FUSE 2.2-2WJ R-TYPE
FR604	87-A00-106-060		RES,FUSE 3.3-1W J R-TYPE
FR801	87-029-070-090		RESISTOR, FUSE 1/4W 2.2
HL1	84-LB3-216-010		HLDR,LED
J401	87-A60-856-010		JACK,PIN 3P
J402	87-A60-324-110		JACK,PIN 6P Y-W-R W/SW
J403	87-A60-858-010		JACK,3.5 BLK ST 2 SW
L2	87-005-614-080		COIL 100UH LAV35 J
L104	87-003-139-080		COIL,0.56UH
L201	8Z-JBR-612-010		COIL,SIF 4.5MHZ 504BN
L203	87-003-148-080		COIL BIAS 33UH
L204	87-003-282-080		COIL,12UH
L205	8Z-JBH-610-010		COIL,PIF-SQ57EL349A 45.75MHZ
L206	87-005-612-080		COIL,68UH J LAV35
L207	87-003-147-080		COIL, 22UH
L208	87-003-150-080		COIL, 68UH J LAL02
L251	87-005-610-080		COIL,47UH LAV35 J

ELECTRICAL MAIN PARTS LIST -3

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
L401	87-005-507-080		COIL,22UH FL0606 J
L402	87-005-507-080		COIL,22UH FL0606 J
L403	87-005-610-080		COIL,47UH LAV35 J
L404	87-005-507-080		COIL,22UH FL0606 J
L602	87-A50-040-010		COIL,2.2MH
L801	87-A50-176-080		COIL,33UH-PJ87
!LF801	87-JB8-651-010		FLTR,LINE SS24 H-K15070
!LF802	8Z-JAD-610-010		FLTR,LINE FLF 15N022AV
!PR801	87-A90-090-080		PROTECTOR,1.5A 491SERIES 60V
!PR802	87-A90-195-080		PROTECTOR 7A 60V 491SERIES
!PR804	87-A90-195-080		PROTECTOR 7A 60V 491SERIES
!PS801	87-A91-407-010		P-COUPLER,ON3171-R
!PS802	87-A91-407-010		P-COUPLER,ON3171-R
!PT801	8Z-JAD-801-010		PT,SW ZJA-D
R107	87-A00-154-090		RES,M/F 18K-1W J RSF(S)
R110	87-A00-160-090		RES,M/F 33-2W J RSF(S)
R312	87-025-602-090		RES,M/O 39-2W J
R429	87-025-381-080		RES,M/F 18K-1/6W F
R430	87-025-424-080		RES,M/F 10K 1/6W F
R431	87-025-380-080		RES,M/F 15K-1/6W F
R432	87-025-381-080		RES,M/F 18K-1/6W F
R450	87-A00-624-090		RES,M/F 3.3-7W J RSV7
R505	87-A00-563-090		RES,M/F 1.5-1/2W J ERXS
R606	87-A00-196-090		RES,M/F 0.47-1/2W J RSF(S)
R610	87-A00-123-090		RES,M/F 3.9K-2W J RSI-2S B
R611	87-A00-561-090		RES,M/F 4.7K-2W J ERGS
R624	87-A00-544-090		RES,M/F 220-3W J ERGS
R804	87-A00-543-080		RES,SD 8.2M-1W J RCR60
R806	87-A00-204-090		RES,CEM 0.18-5W K
R809	87-A00-552-010		RES,CEM 1.0-10W J MPC722
R810	87-A00-552-010		RES,CEM 1.0-10W J MPC722
R812	87-A00-576-090		RES,M/F 27K-5W J RSV5
R813	87-A00-577-090		RES,M/F 22K-2W J RSF(S)
R816	87-A00-411-090		RES,M/F 33K-1W J
R824	87-A00-577-090		RES,M/F 22K-2W J RSF(S)
SF201	8Z-JBH-633-010		FLTR,SAW M1969-US
SW2	87-A90-712-080		SW,TACT EVQ11L07K
SW3	87-A90-712-080		SW,TACT EVQ11L07K
SW4	87-A90-712-080		SW,TACT EVQ11L07K
SW5	87-A90-712-080		SW,TACT EVQ11L07K
SW6	87-A90-712-080		SW,TACT EVQ11L07K
SW7	87-A90-712-080		SW,TACT EVQ11L07K
!SW801	87-A90-364-010		SW,PUSH SDDLB1-C-D-2
!T601	8Z-JBS-605-010		FBT, HFT3608(SAN)20-C
!T602	8Z-JBH-615-010		TRANS,US ETH09K10AZ
!TH801	87-A91-405-010		POS-THMS,T209-B80-A10
TU101	8Z-JBE-610-010		TU UNIT,USA ENV56D74G3
X1	87-A70-124-080		VIB,CER 8.0MHZ
X301	87-A70-007-080		VIB,XTAL 3.58MHZ AQC-1001
X302	87-030-327-010		VIB,CER CSB503F30

NK C.B

C901	87-012-372-010		CAP,CER 1000P-2K
C902	87-018-125-080		CAP, CER 330P-50V
C903	87-018-125-080		CAP, CER 330P-50V
C904	87-018-125-080		CAP, CER 330P-50V
!C905	87-010-976-080		CAP,CER 1000P-500 B
C907	87-016-577-080		CAP,E 470-16 SSL
C908	87-016-627-080		CAP,E 47-16 SSL
CN901	87-049-469-010		CONN,4P V
CN902	87-A60-622-010		CONN,5P V 2MM JMT
CN903	87-A60-485-010		CONN,2P V LV GRA
L901	87-005-615-080		COIL,120UH J LAV35
R904	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
R905	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
R906	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
S901	86-LBU-670-010		SOCKET,CRT 9P CVT3326 1603

MECHANICAL PARTS LIST - 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-054-086-010		BADGE,AIWA 52.5
2	8Z-JAK-003-010		PANEL,MAIN AN2010 NH
3	8Z-JBR-005-010		LENS,RC
4	8Z-JBR-006-010		LENS,LED
5	8Z-JBR-004-010		KEY,MAIN
6	8Z-JBS-001-010		CABI,FR
7	8Z-JB4-620-010		SPKR,6*12 8OHM 10W
8	8Z-JAD-620-010		AC CORD SET,NH BLK
9	8Z-JBR-201-010		HLDR,PCB 1
10	87-JBD-606-010		CRT,A48LRH94X02(W)
11	87-A50-557-010		DGC,20' 15 OHM-TYPE8
12	84-LB3-205-010		SPR-E,EARTH
13	84-LB2-633-110		CONN ASSY,1P CRT GND
14	8Z-JBR-002-010		CABI,REAR
15	8Z-JB5-010-010		PANEL,REAR SH
16	87-A90-332-010		HLDR,SF-2001 HV CABLE
18	8Z-JB5-007-010		BTN,POWER SH
19	84-LB3-216-010		HLDR,LED
A	87-067-680-010		BVI T3+3-10
C	87-078-070-010		BVIT3B+4-12
D	86-LBB-206-010		S-SCREW,ASSY TV5-40 W20
E	87-067-761-010		TAPPING SCREW, BVT2+3-10
F	87-067-579-010		TAPPING SCREW, BVT2+3-8
G	87-067-844-010		BVT2+4-16 BLK
H	87-067-690-010		TAPPING SCREW, BVIT3+3-12

ACCESSORIES LIST-1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-JAK-901-010		IB,NH (E) -AN2110/2010/1410
2	8Z-JAE-951-010		RC UNIT,RC-ZVT18
3	87-A90-702-010		ANT ASSY,TV 5 SEC (NTSC)
4	87-A91-015-010		PLUG,CONVERSION JT-0475A

アイワ株式会社
AIWA CO.,LTD.
〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)
2-11, IKENOHATA 1-CHOME, TAITO-KU, TOKYO 110-8710, JAPAN TEL:03 (3827) 3111

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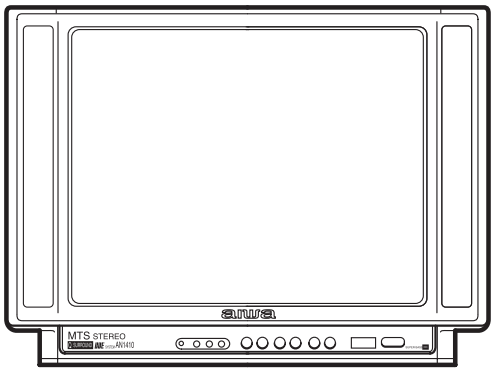
TV-2010 NH



SERVICE MANUAL

COLOR TELEVISION

aiwa

S/M Code No. 09-003-340-3R1

To make the best use of this equipment, make sure to obey the following items when repairing (or mending).

1. Do not damage or melt the tunicate of the leading wire on the AC1 side, including the power supply cord.
2. Do not soil or stain the letters on the spec. inscription plates, notice labels, fuse labels, etc.
3. When repairing the part extracted from the conducted side of the board pattern, fix it firmly with applying bond to the pattern and the part.
4. Restore the following items after repairing.
   1) Conditions of soldering of the wires (especially, the distance on the AC1 side).
   2) Conditions of wiring, bundling of wires, etc.
   3) Types of the wries.
   4) Attachment conditions of all types of the insulation.
5. After repairing, always measure the insulation resistance and perform the voltage-withstand test (See Fig-1).

1) The insulation resistance must be 7.0 to 9.5 MΩ when applying 500V per second.
2) In the voltage withstand test, apply 1.0 kV for 1 minute and check that the GO lamp lights.

* Breaking current set to 10 mA.
* Connect the safety checker as shown in Fig-1, then measure the resistance and perform the test.
* Do not touch the equipment during testing.
* For details of the safety checker, refer to the supplied Operation manual.

Insulation resistance: 7.0 to 9.5 MΩ (500 V/s)
Voltage-withstand: 1.0 kV for 1 minute.

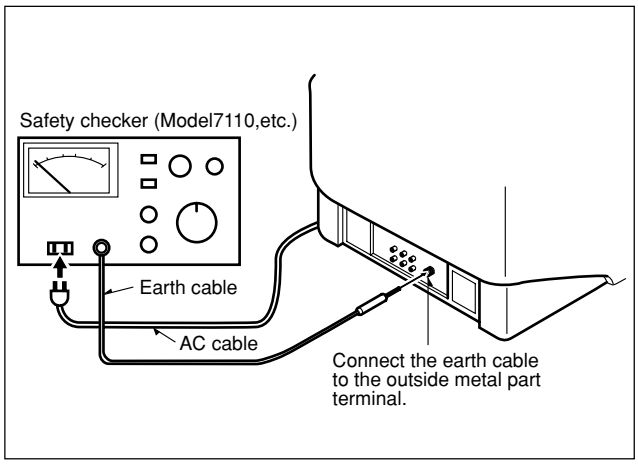


Fig-1

When servicing and checking on the TV, note the followings.

1. Keep the notices.
   As for the places which need special attentions, they are indicated with labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.
2. Avoid an electric shock.
   There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.
3. Use the designated parts.
   The parts in this equipment have the specific characteristics of incombustibility and withstand voltage for safety.
   Therefore, use a part which has the same character as the replaced part. Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts with a ⚠ mark, the designated parts must be used.
4. Put parts and wires in the original position after assembling or wiring.
   There are parts which use the insulation material such as a tube or tape for safety, or which are assembled so that these parts do not make contact with the printed board. The inside wiring is designed not to get close to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.
5. Take care of the cathode-ray tube.
   By setting an explosion-proof cathode-ray tube in this equipment, safety is secured against implosion. However, when removing it or servicing from the back, it gives out shock that is dangerous. Take enough care to deal with it.
6. Avoid an X-ray.
   Safety is secured against an X-ray by giving considerations to the cathode-ray tube and the high voltage peripheral circuit, etc. Therefore, when repairing the high voltage peripheral circuit, use the designated parts and do not change the circuit. Repairing, except indicates, causes rising of high voltage, and the cathode-ray tube emits an X-ray.
7. Perform a safety check after servicing.
   Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are deteriorated portions around the places serviced.

SPECIFICATIONS

Tuner System	Frequency synthesized tuner
TV System	NTSC-M
Channel Coverage	VHF: 2 to 13 UHF: 14 to 69 CATV: 5A, A-1 to A-5, A to W, W+1 to W+84
Program Memory	181
Antenna Input	75 ohms, unbalanced
Picture Tube	20''
Screen Size	404 (W) x 303 (H) mm (16 x 12 in.) 480 mm (Visible diagonal) (19 in.)
Video Input	1 Vp-p 75 ohms
Audio Input	0.5 Vrms., 33 k ohms more
Speaker	120 x 60 mm ($4^{3}/_{4}$ x $2\ ^{3}/_{8}$ in.)
Operating Voltage	110 - 240 V, 50/60 Hz
Power Consumption	105 W
Phone Jack	Stereo-mini jack
Operating Temperature	5°C - 40°C
Operation Humidity	35% - 80%
Dimensions	610 (W) x 440 (H) x 483 (D) mm ($24^{1}/_{8}$ x $17^{3}/_{8}$ x $19^{1}/_{8}$ in.)
Weight	19.5 kg (42.9 lbs.)

• Design and specifications are subject to change without notice.

ACCESSORIES LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-JAK-901-010		IB,NH (E) -AN2110/ 2010/1410
2	8Z-JAE-951-010		RC UNIT,RC-ZVT18
3	87-A90-702-010		ANT ASSY,TV 5 SEC (NTSC)
⚠ 4	87-A91-015-010		PLUG,CONVERSION JT-0475A

DISASSEMBLY INSTRUCTIONS

1. REAR CABINET REMOVAL

(1) Remove four screws ① and three screws ②, then remove the rear cabinet in the direction of the arrow. (See Figure1-1)

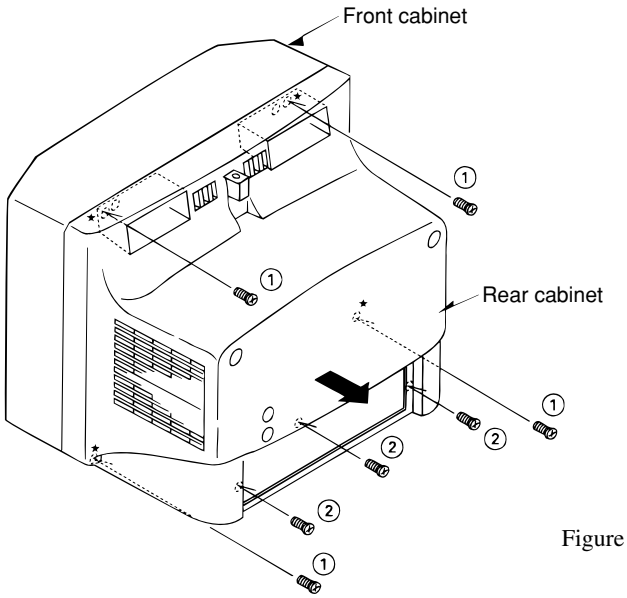


Figure 1-1

2. HIGH-VOLTAGE CAP (ANODE CAP) REMOVAL

2-1. Cautions before Removing

Discharge the anode voltage

(1) The anode voltage is not discharged completely from the CRT of this unit even after the power is turned off. Be sure to discharge the residual anode voltage before removing the anode cap.

Do not use pliers

(2) Do not use pliers, etc. to remove the anode cap. If you used pliers and bent the hook to remove the cap, the spring characteristics of the hook could be lost, and when reinstalled, the cap would come off from the CRT anode button easily, causing an accident.

Do not turn the anode cap

(3) If the anode cap is turned in the direction of its circumference, the hook is likely to come off.

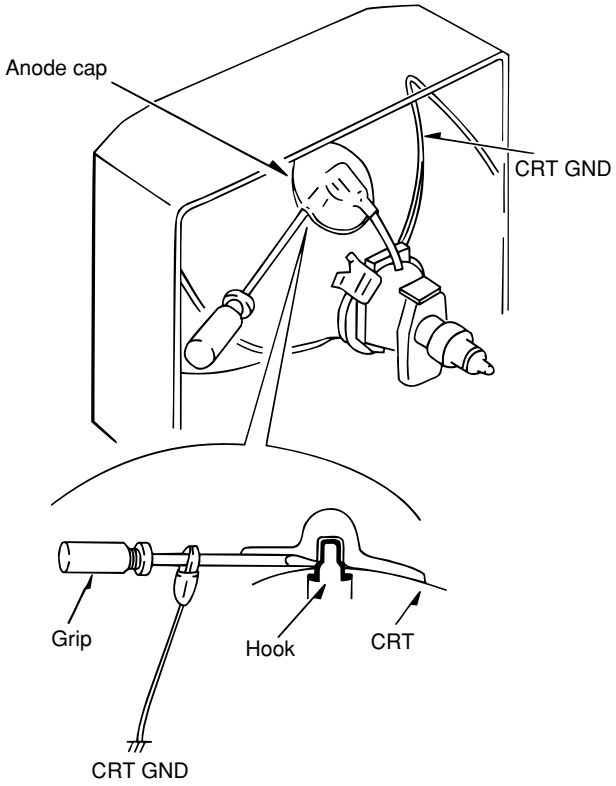


Figure 2-1

2-2. Anode Cap Removal

Discharge the anode voltage. (See Figure 2-1)

(1) Connect a flat-bladed screwdriver to the CRT GND via an alligator clip.
(2) Use a tester to check the end of the screwdriver and ground of the TV for continuity.
(3) Touch the hook with the end of the screwdriver.
Caution : Be careful not to damage the anode cap.
(4) Turn over the anode cap.
Caution : Be careful not to damage the anode cap.

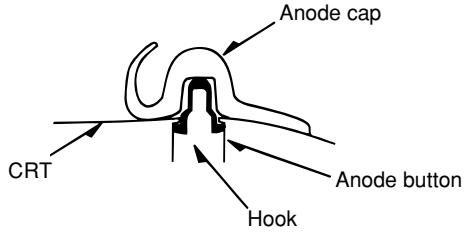


Figure 2-2

(5) Push the anode cap with your thumb in the direction of arrow ① as shown in the figure, then lift the cap in the direction of arrow ② to release the hook on one side. (See Figure 2-3)

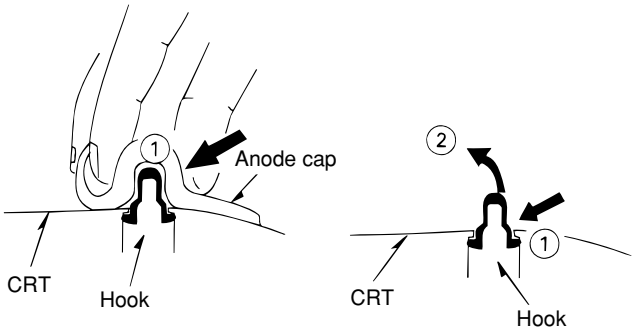


Figure 2-3

(6) Turn over the anode cap on the side where the hook was released and pull out the cap in the direction opposite to that on which the cap was pushed. (See Figure 2-4)
Caution : Do not pull out the anode cap straight up.
: Do not pull the cap forcibly. After removing the cap, check that the hook is not deformed.

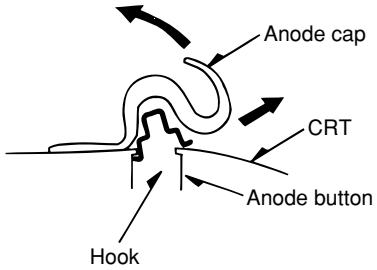


Figure 2-4

3. ANODE CAP REINSTALLTION

Observe the cautions carefully so that no accident occurs due to a defect in installing the anode cap and so it does not come off.

3-1. Caution before Reinstalling

Never turn the anode cap after installing it

Never re-use the hook when it has been deformed

(1) If the anode cap is turned after it is installed, it may come off. Therefore, arrange the high-voltage cable before attaching the anode cap. (See Figure 3-1)
(2) If you have attached the anode cap before arranging the high-voltage cable, arrange the cable carefully so the cap does not turn.

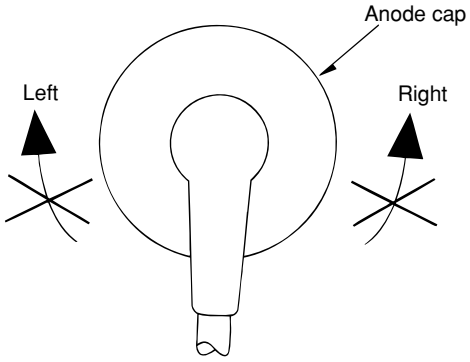


Figure 3-1

3-2. Anode cap reinstallation

(1) Use a clean cloth moistened slightly with alcohol to clean the installation section. (See Figure 3-2)
Caution : Check that the installation section is free from dust, foreign matter, etc.
(2) Coat the anode cap installation circumference with an appropriate amount of the specified silicone grease (KS-650N).
Caution : Be careful that silicone grease does not enter the anode button.

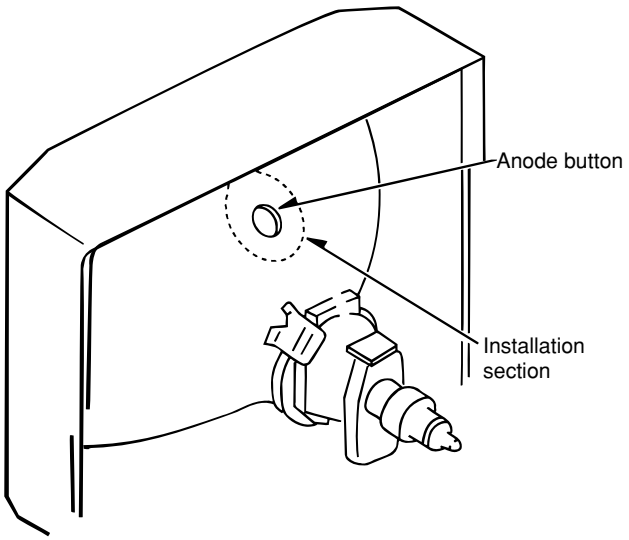


Figure 3-2

(3) Eliminate twisting, etc. of the high-voltage cable and arrange it so that no twisting occurs. (See Figure 3-3)
Caution : If the cable is not arranged correctly, the anode cap could turn and cause an installation defect.

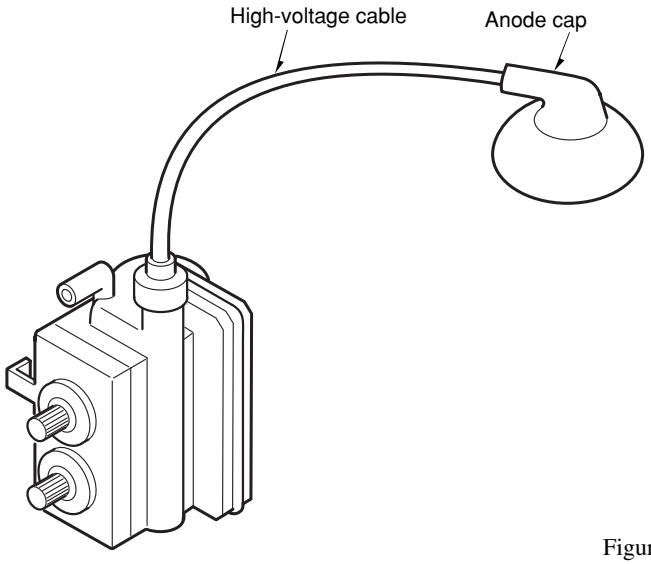


Figure 3-3

(4) Turn over the rubber cap symmetrically on the left and right. (See Figure 3-4)
Caution : Take great care not to damage the anode cap.

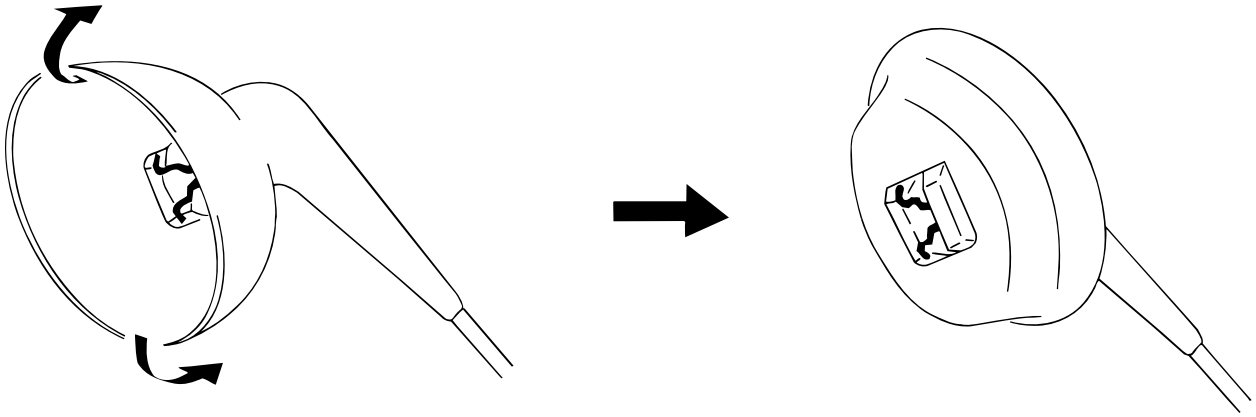


Figure 3-4

(5) Fit your forefinger over the projection at the center of the cap and hold the cap between your thumb and middle finger. (See Figure 3-5)

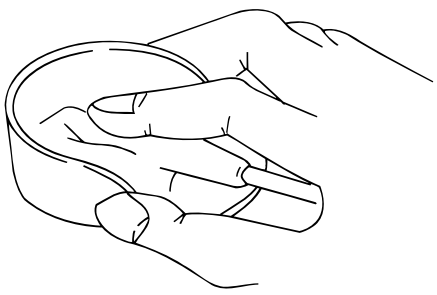
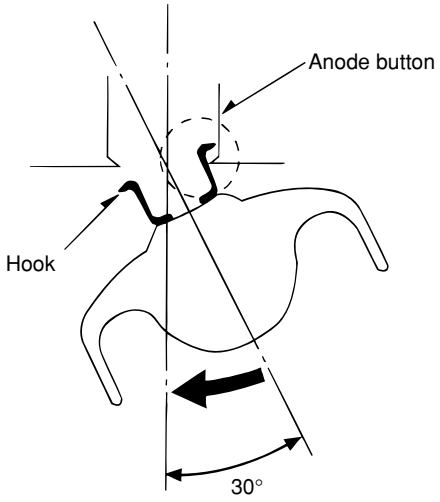


Figure 3-5

(6) Apply the hook on one side to the anode button as shown on the figure. (See Figure 3-6)
Caution : Check that the hook is held securely.
(7) Apply the hook on the other side to the anode button as shown in Figure 3-7.



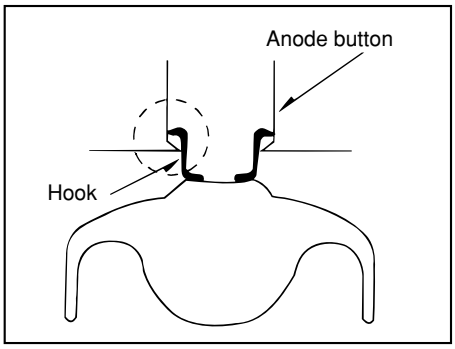


Figure 3-7

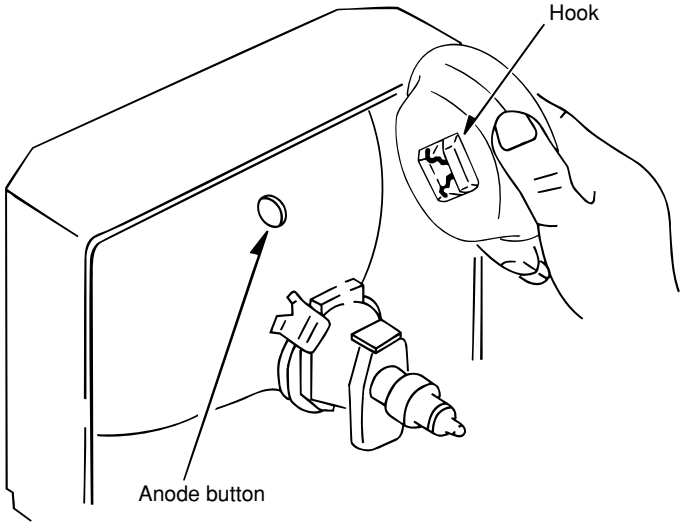


Figure 3-6

(8) Pull the anode cap slightly with the rubber cap turned over and visually check that the hook is engaged securely.
(9) Release your hand from the rubber cap of the anode cap.
Caution : Cover the anode cap so that it does not lift.
(10) Hold the skirt of the andoe cap slightly to improve the close contact between the cap and CRT.
(11) Check that the anode cap is in close contact with the CRT. (See Figure 3-8)

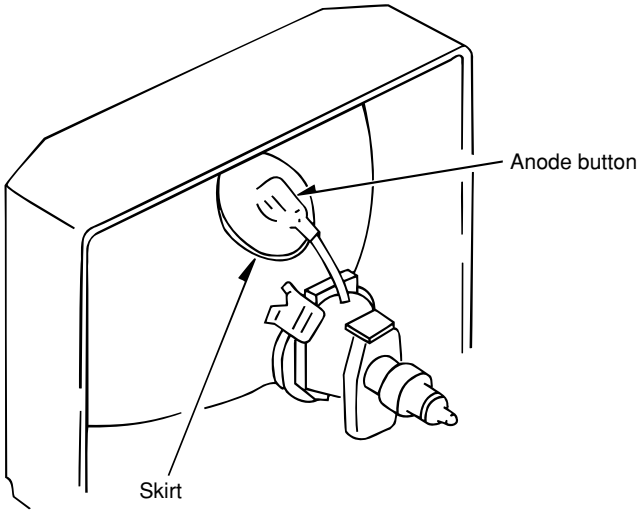


Figure 3-8

4. NK C.B REMOVAL

(1) Disconnect CN903 (CRT GND).
(2) Disconnect CN901, CN902.
(3) Pul out the NK C.B. in the direction of arrow.
(See Figure 4)

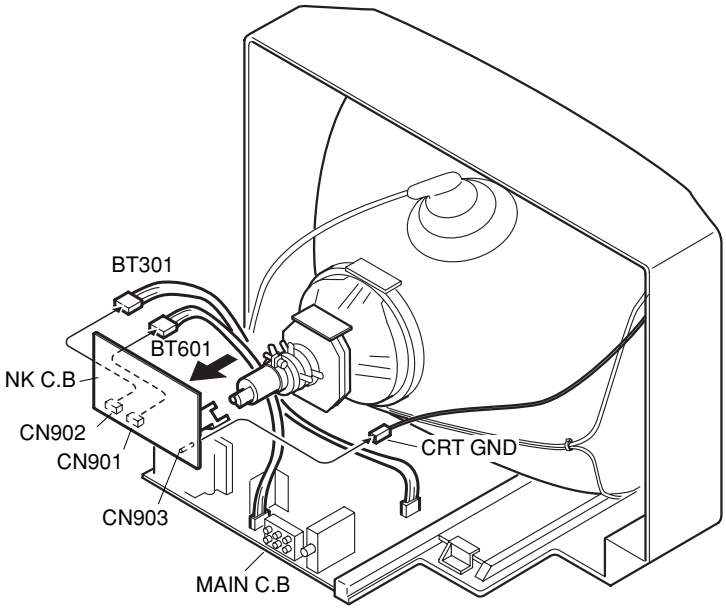


Figure 4

5. MAIN C.B REMOVAL

(1) Disconnect CNA401, CN601 and CN802.
(2) Pull out the Main C.B. in the direction of the arrow.
(See Figure 5)

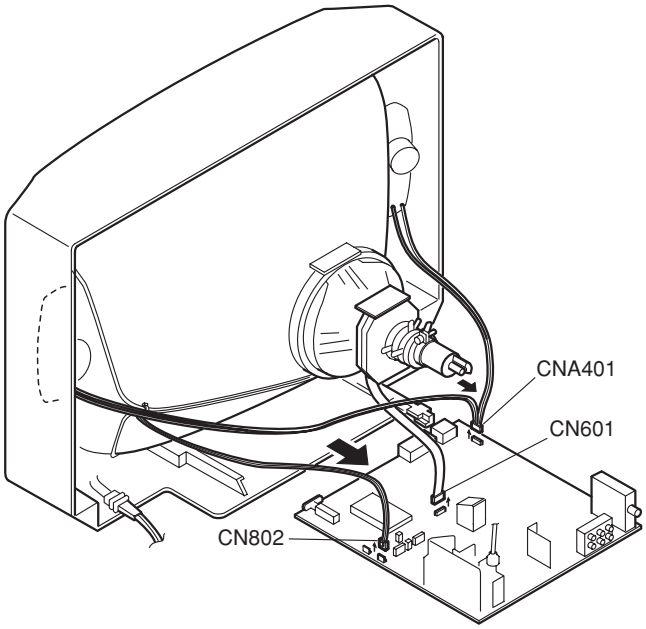


Figure 5

ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC			
	87-A20-364-010		IC,KIA7809PI
	87-027-666-010		IC,TC4052BP
	87-A20-312-010		IC,M62420SP
	87-070-237-010		IC,LA7832
	87-A30-041-110		TR,SE115N
	87-A20-611-080		IC,M51943BSL-700A
	8Z-JAD-621-010		IC,M37272M8-165SP
	87-A91-538-010		RCR UNIT,SBX1981-72P
	87-A21-433-010		IC,KS24C041I
	87-A21-299-010		IC,LA6458SLL
	8Z-JBJ-605-010		IC,TA1268N
	87-002-421-010		IC,NJM2233BL
	87-A21-283-010		IC,AN5277
	87-A21-259-010		IC,MM1454XD
	87-A21-169-010		IC,MM1124B
	87-A21-345-010		IC,NJM2150
	87-A21-344-010		IC,STR-F6656
TRANSISTOR			
	89-337-794-580		TR,2SC3779 D/E
	87-A30-091-080		FET,2SJ460
	87-A30-114-080		TR,2SD1207T
	89-208-922-380		TR,2SB892 ST
	87-026-269-080		TR,DTA114ES
	89-327-854-080		TR,2SC2785F
	89-111-755-080		TR,2SA1175F
	87-A30-121-080		TR,DTC 323 TS
	87-A30-090-080		FET,2SK2541
	87-A30-176-010		TR,2SC1573A P/Q/R
	89-320-012-080		TR,2SC2001L
	87-A30-095-010		TR,2SD2333LS/C202
DIODE			
	87-017-654-060		DIODE,GBU6JL6131
	87-070-111-060		DIODE,RU30A
	87-017-352-090		DIODE,RU3YX
	87-070-112-060		DIODE,RU4YX
	87-017-931-080		ZENER,MTZJ5.6B
	87-002-743-080		ZENER,MTZJ 33B
	87-070-136-080		ZENER,MTZJ5.1B
	87-A40-523-080		ZENER,MTZJ9.1B
	87-A40-348-080		ZENER,MTZJ3.3A
	87-020-465-080		DIODE,1SS133 (110MA)
	87-A40-286-080		DIODE,RGP10JE-5025
	87-070-274-080		DIODE,1N4003 SEM
	87-017-932-080		ZENER,MTZJ6.2B
	87-A40-450-090		DIODE,RU 1P
	87-A40-611-080		ZENER,MTZJ3.9B
	87-A40-249-080		ZENER,MTZJ 15A
MAIN C.B			
BT301	87-JBC-625-010		CONN ASSY,5P V WHT TV-NK
BT401	8Z-JAE-615-110		CONN ASSY,4P V GRAY JK
BT601	87-JBC-626-010		CONN ASSY,4P V WHT TV-NK
C1	87-016-624-080		CAP,E 10-16 SSL
C2	87-018-134-080		CAPACITOR,TC-U 0.01-16
C3	87-018-134-080		CAPACITOR,TC-U 0.01-16
C5	87-016-633-080		CAP,E 1-50 SSL
C6	87-018-134-080		CAPACITOR,TC-U 0.01-16
C7	87-016-621-080		CAP,E 220-10 SSL
C10	87-018-119-080		CAP, CER 100P-50V
C15	87-018-123-080		CAP, CER 220P-50V
C16	87-016-633-080		CAP,E 1-50 SSL
C17	87-018-131-080		CAP, CER 1000P-50V
C18	87-018-128-080		CAP, CERA-SOL SS 560P
C19	87-016-629-080		CAP,E 0.1-50 SSL
C21	87-018-115-080		CAP, CER 47P-50V
C22	87-018-115-080		CAP, CER 47P-50V
C23	87-018-125-080		CAP, CER 330P-50V
C24	87-018-131-080		CAP, CER 1000P-50V
C25	87-016-629-080		CAP,E 0.1-50 SSL
C28	87-018-117-080		CAP,TC-U 68P-50 SL
C29	87-018-117-080		CAP,TC-U 68P-50 SL
C101	87-016-636-080		CAP,E 4.7-50 SSL
C104	87-016-621-080		CAP,E 220-10 SSL
C106	87-A10-576-010		CAP,CER 0.01-50 Z YF
C110	87-018-134-080		CAPACITOR,TC-U 0.01-16
C111	87-018-134-080		CAPACITOR,TC-U 0.01-16
C201	87-018-134-080		CAPACITOR,TC-U 0.01-16
C202	87-018-134-080		CAPACITOR,TC-U 0.01-16
C203	87-016-632-080		CAP,E 0.47-50 SSL
C204	87-018-134-080		CAPACITOR,TC-U 0.01-16
C205	87-016-577-080		CAP,E 470-16 SSL
C207	87-016-632-080		CAP,E 0.47-50 SSL
C208	87-018-134-080		CAPACITOR,TC-U 0.01-16
C209	87-016-576-080		CAP,E 330-16 SSL
C210	87-018-115-080		CAP, CER 47P-50V
C211	87-A11-080-080		CAP,TC U 47P-50 J CH
C214	87-016-627-080		CAP,E 47-16 SSL
C251	87-018-134-080		CAPACITOR,TC-U 0.01-16
C252	87-016-574-080		CAP,E 100-16 SSL
C253	87-A10-112-080		CAP,E 100-10 SSL
C254	87-015-464-080		CAP,E 4.7-16 BP
C255	87-015-464-080		CAP,E 4.7-16 BP
C301	87-016-624-080		CAP,E 10-16 SSL
C302	87-016-624-080		CAP,E 10-16 SSL
C303	87-016-624-080		CAP,E 10-16 SSL
C304	87-016-637-080		CAP,E 10-50 SSL
C305	87-018-134-080		CAPACITOR,TC-U 0.01-16
C306	87-016-574-080		CAP,E 100-16 SSL
C308	87-016-632-080		CAP,E 0.47-50 SSL
C310	87-018-119-080		CAP, CER 100P-50V
C311	87-A11-148-080		CAP,TC U 0.1-50 Z F
C312	87-A11-148-080		CAP,TC U 0.1-50 Z F
C313	87-A11-148-080		CAP,TC U 0.1-50 Z F
C314	87-018-134-080		CAPACITOR,TC-U 0.01-16
C315	87-018-131-080		CAP, CER 1000P-50V
C316	87-016-634-080		CAP,E 2.2-50 SSL
C317	87-016-634-080		CAP,E 2.2-50 SSL
C318	87-018-134-080		CAPACITOR,TC-U 0.01-16
C319	87-016-575-080		CAP,E 220-16 SSL
C320	87-016-587-090		CAP,E 1000-25 M SSL
C321	87-016-636-080		CAP,E 4.7-50 SSL
C323	87-016-625-080		CAP,E 22-16 SSL
C324	87-016-632-080		CAP,E 0.47-50 SSL
C328	87-016-624-080		CAP,E 10-16 SSL
C330	87-016-633-080		CAP,E 1-50 SSL
C332	87-018-134-080		CAPACITOR,TC-U 0.01-16
C333	87-018-125-080		CAP, CER 330P-50V
C334	87-018-134-080		CAPACITOR,TC-U 0.01-16
C335	87-016-574-080		CAP,E 100-16 SSL
C336	87-A11-148-080		CAP,TC U 0.1-50 Z F
C338	87-016-632-080		CAP,E 0.47-50 SSL
C342	87-010-529-080		CAP,E 1-50 BP
C343	87-018-131-080		CAP, CER 1000P-50V
C344	87-A11-080-080		CAP,TC U 47P-50 J CH
C346	87-016-622-080		CAP,E 470-10 SSL
C348	87-018-126-080		CAP,TC-U 390P-50 B
C401	87-018-134-080		CAPACITOR,TC-U 0.01-16
C402	87-016-627-080		CAP,E 47-16 SSL
⚠C403	87-010-399-090		CAP,E 3300-35 SME
C404	87-018-134-080		CAPACITOR,TC-U 0.01-16
C405	87-018-134-080		CAPACITOR,TC-U 0.01-16
C406	87-018-134-080		CAPACITOR,TC-U 0.01-16
C407	87-016-627-080		CAP,E 47-16 SSL

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C408	87-016-574-080		CAP,E 100-16 SSL
C409	87-016-625-080		CAP,E 22-16 SSL
C410	87-016-624-080		CAP,E 10-16 SSL
C411	87-016-624-080		CAP,E 10-16 SSL
C412	87-016-624-080		CAP,E 10-16 SSL
C413	87-016-624-080		CAP,E 10-16 SSL
C414	87-016-624-080		CAP,E 10-16 SSL
C415	87-016-633-080		CAP,E 1-50 SSL
C416	87-016-633-080		CAP,E 1-50 SSL
C417	87-018-134-080		CAPACITOR,TC-U 0.01-16
C418	87-016-624-080		CAP,E 10-16 SSL
C419	87-A10-112-080		CAP,E 100-10 SSL
C428	87-016-627-080		CAP,E 47-16 SSL
C429	87-016-627-080		CAP,E 47-16 SSL
C430	87-018-134-080		CAPACITOR,TC-U 0.01-16
C435	87-016-627-080		CAP,E 47-16 SSL
C436	87-018-134-080		CAPACITOR,TC-U 0.01-16
C437	87-016-624-080		CAP,E 10-16 SSL
C440	87-016-627-080		CAP,E 47-16 SSL
C444	87-016-633-080		CAP,E 1-50 SSL
C445	87-016-591-080		CAP,E 100-35 SSL
C447	87-016-633-080		CAP,E 1-50 SSL
C449	87-016-588-090		CAP,E 2200-25 SSL
C450	87-016-588-090		CAP,E 2200-25 SSL
C453	87-016-574-080		CAP,E 100-16 SSL
C454	87-016-624-080		CAP,E 10-16 SSL
C455	87-016-624-080		CAP,E 10-16 SSL
C459	87-015-464-080		CAP,E 4.7-16 BP
C460	87-015-464-080		CAP,E 4.7-16 BP
C465	87-018-134-080		CAPACITOR,TC-U 0.01-16
C466	87-016-624-080		CAP,E 10-16 SSL
C473	87-018-118-080		CAP,TC-U 82P-50 B
C474	87-018-118-080		CAP,TC-U 82P-50 B
C475	87-018-117-080		CAP,TC-U 68P-50 SL
C476	87-018-117-080		CAP,TC-U 68P-50 SL
C477	87-015-464-080		CAP,E 4.7-16 BP
C478	87-015-464-080		CAP,E 4.7-16 BP
C487	87-016-633-080		CAP,E 1-50 SSL
C488	87-016-633-080		CAP,E 1-50 SSL
C495	87-018-115-080		CAP, CER 47P-50V
C496	87-018-115-080		CAP, CER 47P-50V
C502	87-A10-831-080		CAP,E 1000-25 M SMG
C503	87-016-633-080		CAP,E 1-50 SSL
C504	87-016-633-080		CAP,E 1-50 SSL
C508	87-A10-469-080		CAP,CER 2200P-500 K B DD10
C510	87-018-131-080		CAP, CER 1000P-50V
C511	87-016-591-080		CAP,E 100-35 SSL
C601	87-016-644-080		CAP,E 10-100 SSL
C604	87-016-593-080		CAP,E 470-35 M SSL
C606	87-A10-675-090		CAP,M/P 0.56-250 J
C608	87-A10-833-010		CAP,CER 1000P-2K K R LONG
C609	87-A11-047-090		CAP,M/P 8200P-1.25 H PHS
⚠C610	87-010-974-080		CAP,CER 220P-500 B
⚠C611	87-010-974-080		CAP,CER 220P-500 B
C612	87-016-624-080		CAP,E 10-16 SSL
C615	87-016-215-080		CAP,E 1-160 M TWSS
C616	87-A10-833-010		CAP,CER 1000P-2K K R LONG
⚠C801	87-A10-688-090		CAP,M/P 0.22-275 K (B81133)
⚠C803	87-A10-517-010		CAP,CER 3300P-4K M E KX
⚠C804	87-A10-517-010		CAP,CER 3300P-4K M E KX
C805	87-016-633-080		CAP,E 1-50 SSL
C806	87-A11-825-010		CAP,CER 120P-2K J SL
C807	87-018-127-080		CAP, CER 470P-50V
⚠C808	87-A11-992-090		CAP,E 330-400 105 KMH
C810	87-016-628-080		CAP,E 10-25 SSL
C811	87-016-582-080		CAP,E 47-25 SSL
C812	87-A11-302-090		CAP,M/P 0.01-630 J ECQF6(ZH)
C814	87-018-130-080		CAP,TC-U 820P-50 B
C815	87-A10-860-090		CAP,CER 470P-2K K R
C816	87-A10-731-090		CAP,E 220-160 M KMF

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
⚠C817	87-A10-688-090		CAP,M/P 0.22-275 K (B81133)
C819	87-016-587-090		CAP,E 1000-25 M SSL
C821	87-010-446-010		CAP,E 2200-35 KME
C822	87-016-515-010		CAP,CER 1000P-1K KB
C827	87-016-587-090		CAP,E 1000-25 M SSL
C830	87-A11-824-010		CAP,CER 100P-2K J SL
C831	87-A10-858-090		CAP,CER 330P-2K KR
CF201	84-LB3-626-010		FLTR,TPS4.5MB2
CF202	87-008-574-080		FLTR,SFSH4.5MCB
CN1	87-009-195-010		CONN,5P B5BEH
CN401	87-049-469-010		CONN,4P V
CN601	87-A60-933-010		CONN,4P V B04(5-3)B-DVS-L
CN604	87-A60-485-010		CONN,2P V LV GRA
⚠CN801	87-099-674-010		CONN,2P VA V
⚠CN802	82-481-649-010		PLUG,2P MINI(*)
CNA401	87-JB8-601-010		CONN ASSY,4P SP-20
D1	87-070-110-010		LED,SLP-181B-51
D810	87-A90-965-010		VRIS,TNR15G471K
⚠F801	87-035-192-010		FUSE, 4AT
FB801	87-003-320-080		F-BEAD,FBR07HA121NB
FB803	87-003-320-080		F-BEAD,FBR07HA121NB
FB804	87-003-320-080		F-BEAD,FBR07HA121NB
FB805	87-003-320-080		F-BEAD,FBR07HA121NB
FB806	87-003-320-080		F-BEAD,FBR07HA121NB
FB807	87-003-320-080		F-BEAD,FBR07HA121NB
⚠FC801	87-033-213-080		CLAMP, FUSE
⚠FC802	87-033-213-080		CLAMP, FUSE
FR601	87-A00-063-060		RES,FUSE 2.2-1/2W J R-TYPE
FR602	87-A00-055-060		RES,FUSE 2.2-2WJ R-TYPE
FR604	87-A00-106-060		RES,FUSE 3.3-1W J R-TYPE
FR801	87-029-070-090		RESISTOR, FUSE 1/4W 2.2
HL1	84-LB3-216-010		HLDR,LED
J401	87-A60-856-010		JACK,PIN 3P
J402	87-A60-324-110		JACK,PIN 6P Y-W-R W/SW
J403	87-A60-858-010		JACK,3.5 BLK ST 2 SW
L2	87-005-614-080		COIL 100UH LAV35 J
L104	87-003-139-080		COIL,0.56UH
L201	8Z-JBR-612-010		COIL,SIF 4.5MHZ 504BN
L203	87-003-148-080		COIL BIAS 33UH
L204	87-003-282-080		COIL,12UH
L205	8Z-JBH-610-010		COIL,PIF-SQ57EL349A 45.75MHZ
L206	87-005-612-080		COIL,68UH J LAV35
L207	87-003-147-080		COIL, 22UH
L208	87-003-150-080		COIL, 68UH J LAL02
L251	87-005-610-080		COIL,47UH LAV35 J
L401	87-005-507-080		COIL,22UH FL0606 J
L402	87-005-507-080		COIL,22UH FL0606 J
L403	87-005-610-080		COIL,47UH LAV35 J
L404	87-005-507-080		COIL,22UH FL0606 J
L602	87-A50-040-010		COIL,2.2MH
L801	87-A50-176-080		COIL,33UH-PJ87
⚠LF801	87-JB8-651-010		FLTR,LINE SS24H-K15070
⚠LF802	8Z-JAD-610-010		FLTR,LINE FLF 15N022AV
⚠PR801	87-A90-090-080		PROTECTOR,1.5A 491SERIES 60V
⚠PR802	87-A90-195-080		PROTECTOR 7A 60V 491SERIES
⚠PR804	87-A90-195-080		PROTECTOR 7A 60V 491SERIES
⚠PS801	87-A91-407-010		P-COUPLER,ON3171-R
⚠PS802	87-A91-407-010		P-COUPLER,ON3171-R
⚠PT801	8Z-JAD-801-010		PT,SW ZJA-D
R107	87-A00-154-090		RES,M/F 18K-1W J RSF(S)
R110	87-A00-160-090		RES,M/F 33-2W J RSF(S)
R312	87-025-602-090		RES,M/O 39-2W J
R429	87-025-381-080		RES,M/F 18K-1/6W F
R430	87-025-424-080		RES,M/F 10K 1/6W F
R431	87-025-380-080		RES,M/F 15K-1/6W F
R432	87-025-381-080		RES,M/F 18K-1/6W F
R450	87-A00-624-090		RES,M/F 3.3-7W J RSV7
R505	87-A00-563-090		RES,M/F 1.5-1/2W J ERXS
R606	87-A00-196-090		RES,M/F 0.47-1/2W J RSF(S)

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
R610	87-A00-123-090		RES,M/F 3.9K-2W J RSI-2S B
R611	87-A00-561-090		RES,M/F 4.7K-2W J ERGS
R624	87-A00-544-090		RES,M/F 220-3W J ERGS
R804	87-A00-543-080		RES,SD 8.2M-1W J RCR60
R806	87-A00-204-090		RES,CEM 0.18-5W K
R809	87-A00-552-010		RES,CEM 1.0-10W J MPC722
R810	87-A00-552-010		RES,CEM 1.0-10W J MPC722
R812	87-A00-576-090		RES,M/F 27K-5W J RSV5
R813	87-A00-577-090		RES,M/F 22K-2W J RSF(S)
R816	87-A00-411-090		RES,M/F 33K-1W J
R824	87-A00-577-090		RES,M/F 22K-2W J RSF(S)
SF201	8Z-JBH-633-010		FLTR,SAW M1969-US
SW2	87-A90-712-080		SW,TACT EVQ11L07K
SW3	87-A90-712-080		SW,TACT EVQ11L07K
SW4	87-A90-712-080		SW,TACT EVQ11L07K
SW5	87-A90-712-080		SW,TACT EVQ11L07K
SW6	87-A90-712-080		SW,TACT EVQ11L07K
SW7	87-A90-712-080		SW,TACT EVQ11L07K
⚠SW801	87-A90-364-010		SW,PUSH SDDLB1-C-D-2
⚠T601	8Z-JBS-605-010		FBT, HFT3608(SAN)20-C
⚠T602	8Z-JBH-615-010		TRANS,US ETH09K10AZ
⚠TH801	87-A91-405-010		POS-THMS,T209-B80-A10
TU101	8Z-JBE-610-010		TU UNIT,USA ENV56D74G3
X1	87-A70-124-080		VIB,CER 8.0MHZ
X301	87-A70-007-080		VIB,XTAL 3.58MHZ AQC-1001
X302	87-030-327-010		VIB,CER CSB503F30

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
NK C.B			
C901	87-012-372-010		CAP,CER 1000P-2K
C902	87-018-125-080		CAP, CER 330P-50V
C903	87-018-125-080		CAP, CER 330P-50V
C904	87-018-125-080		CAP, CER 330P-50V
⚠C905	87-010-976-080		CAP,CER 1000P-500 B
C907	87-016-577-080		CAP,E 470-16 SSL
C908	87-016-627-080		CAP,E 47-16 SSL
CN901	87-049-469-010		CONN,4P V
CN902	87-A60-622-010		CONN,5P V 2MM JMT
CN903	87-A60-485-010		CONN,2P V LV GRA
L901	87-005-615-080		COIL,120UH J LAV35
R904	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
R905	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
R906	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
S901	86-LBU-670-010		SOCKET,CRT 9P CVT3326 1603

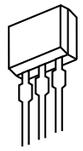
TRANSISTOR ILLUSTRATION

E C B

2SB892
2SC1573
2SC2001

B E C

2SC3779
2SD1207



E C B

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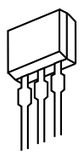

S D G

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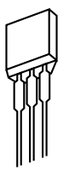
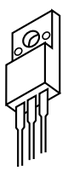


E C B

DTA114ES
DTC323TS

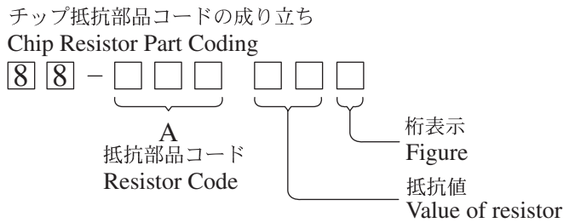


B C E

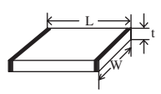
2SD2333

○チップ抵抗部品コード／CHIP RESISTOR PART CODE

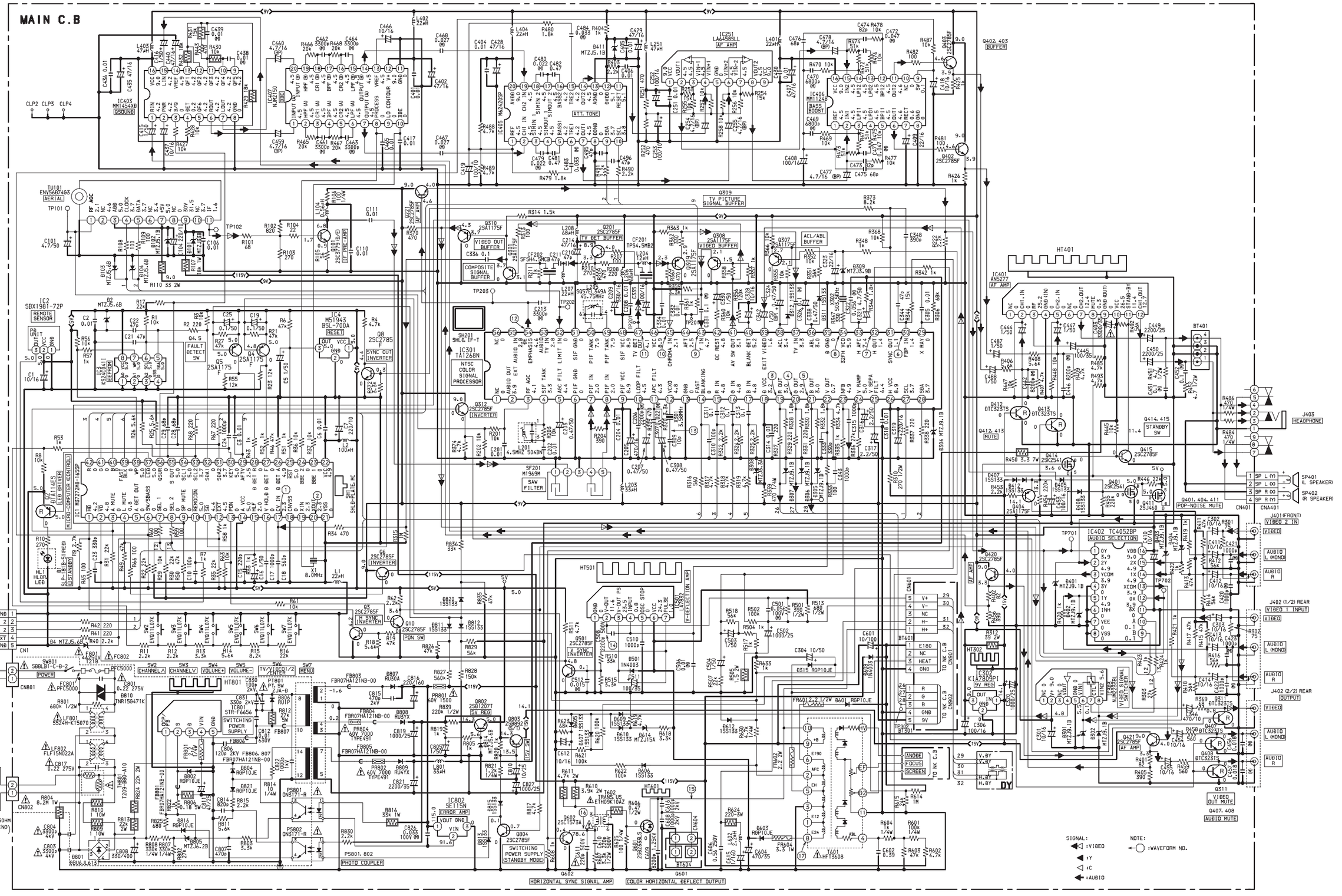
チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



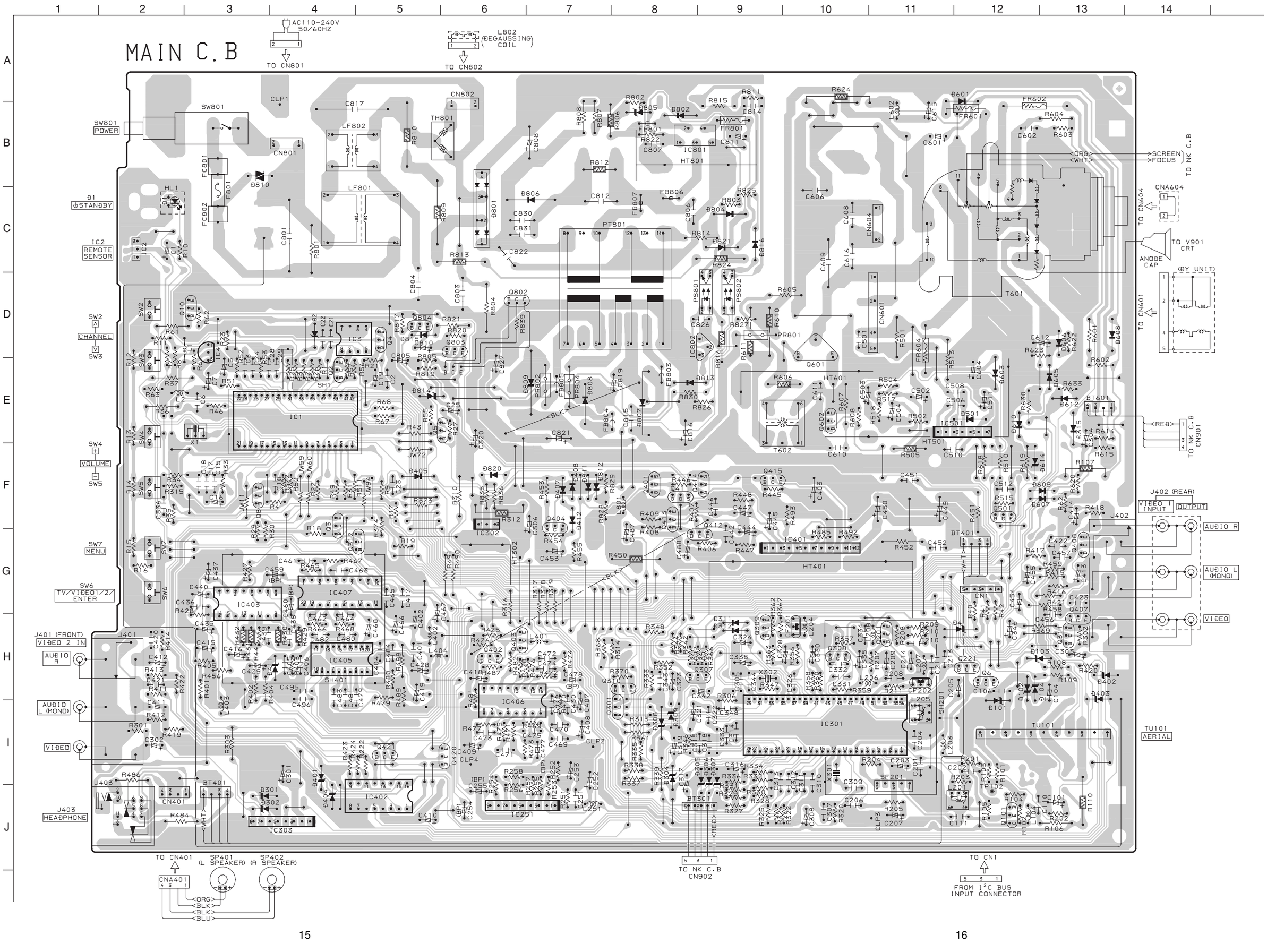
チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm) 外形／Form	L	W	t	抵抗コード : A Resistor Code : A
1/16W	1005	±5%	CJ		1.0	0.5	0.35	104
1/16W	1608	±5%	CJ		1.6	0.8	0.45	108
1/10W	2125	±5%	CJ		2	1.25	0.45	118
1/8W	3216	±5%	CJ		3.2	1.6	0.55	128

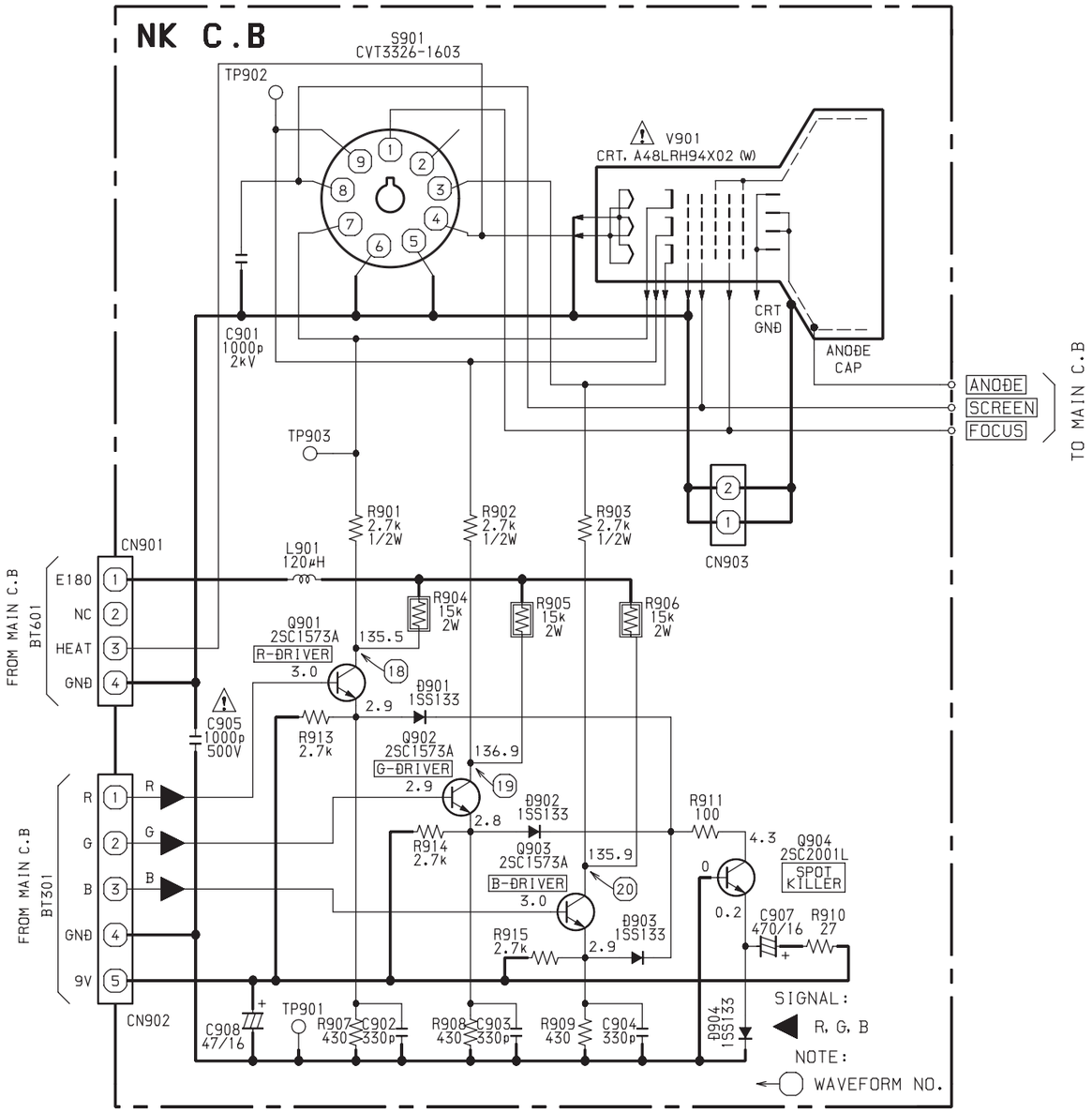
SCHEMATIC DIAGRAM-1 (MAIN SECTION)



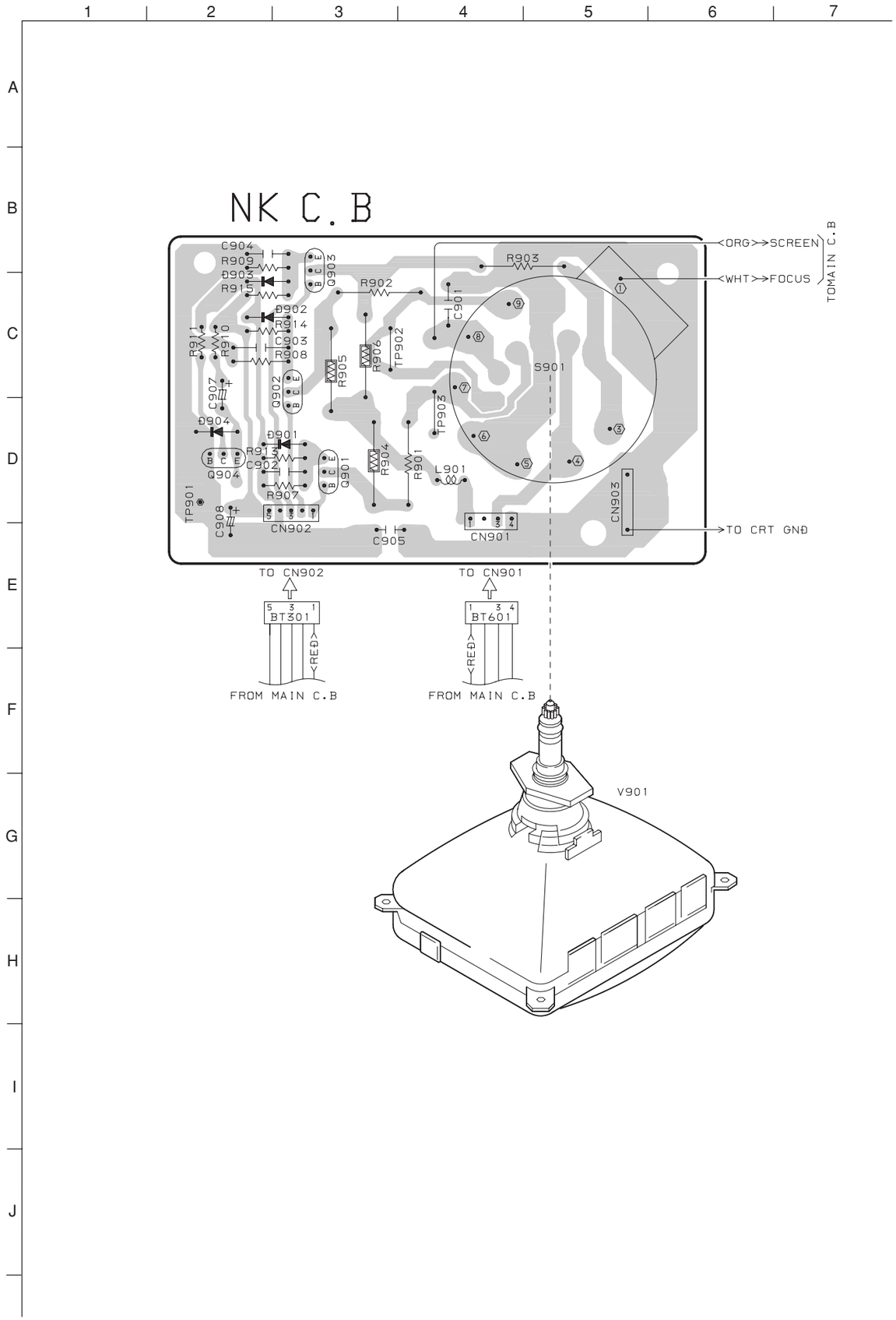
WIRING-1 (MAIN C.B SECTION)



SCHEMATIC DIAGRAM-2 (NK SECTION)

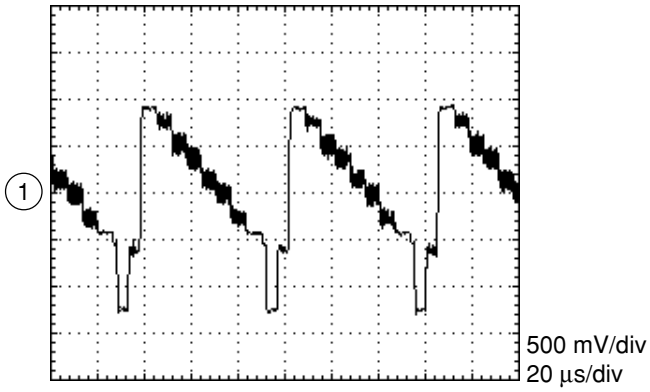


WIRING-2 (NK C.B SECTION)

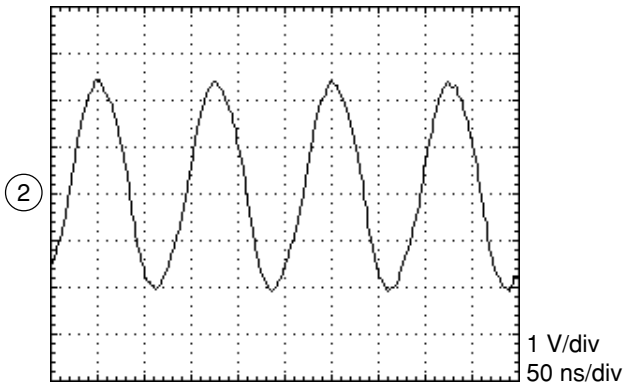


WAVEFORM

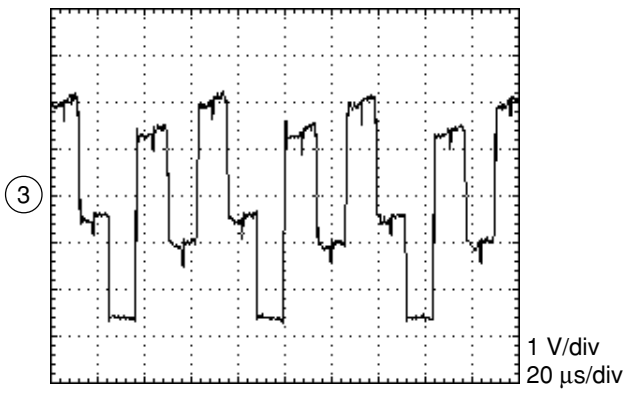
① IC1 Pin 17 (CV IN)



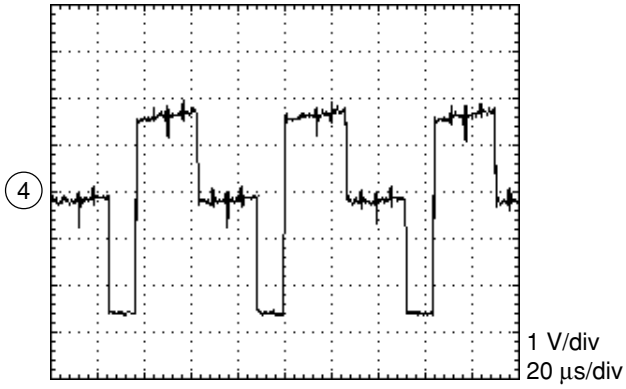
② IC1 Pin 20 (XOUT)



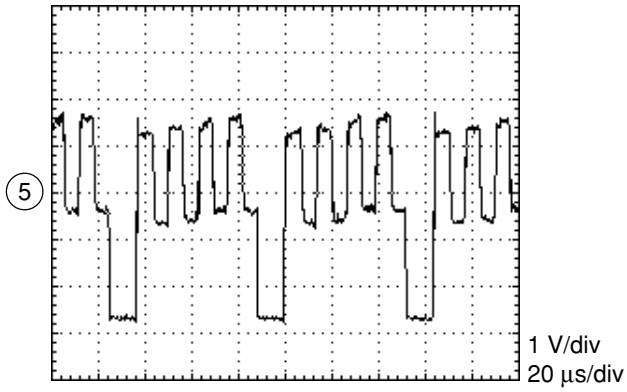
③ IC301 Pin 19 (R OUT)



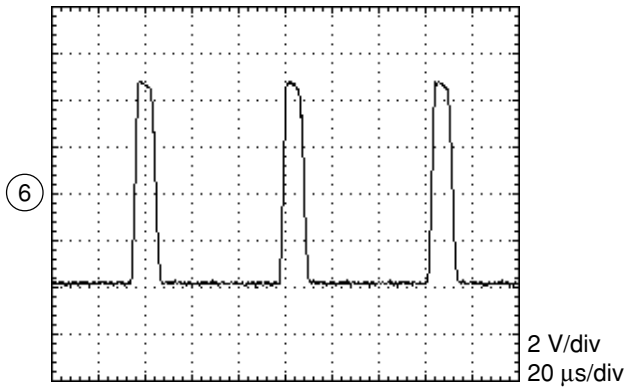
④ IC301 Pin 20 (G OUT)



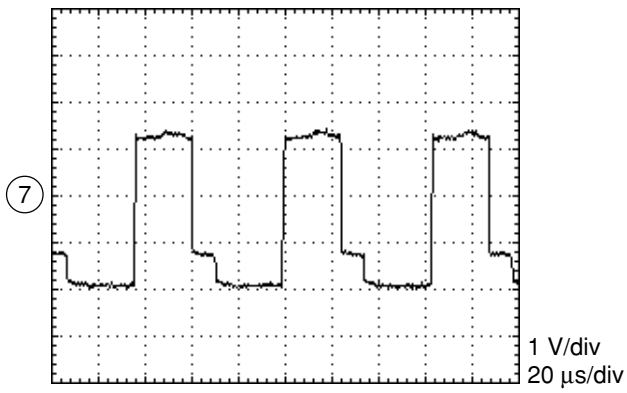
⑤ IC301 Pin 21 (B OUT)



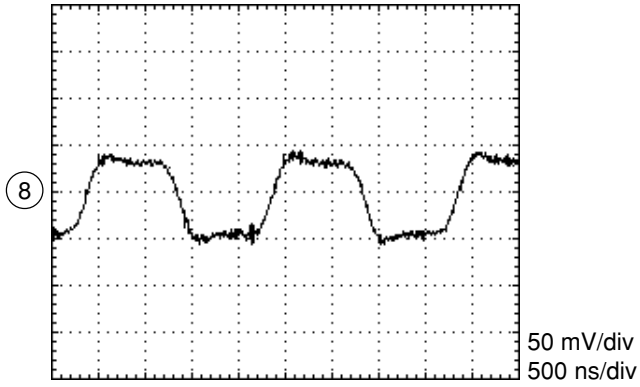
⑥ IC301 Pin 30 (FBP IN)



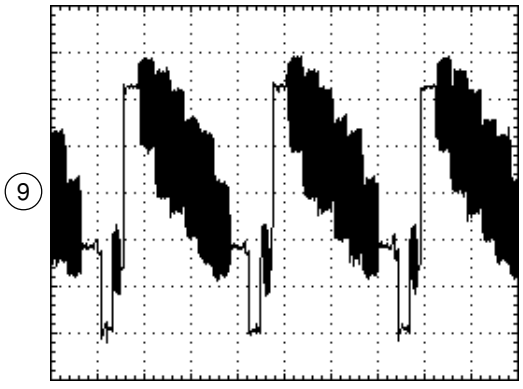
⑦ IC301 Pin 32 (H OUT)



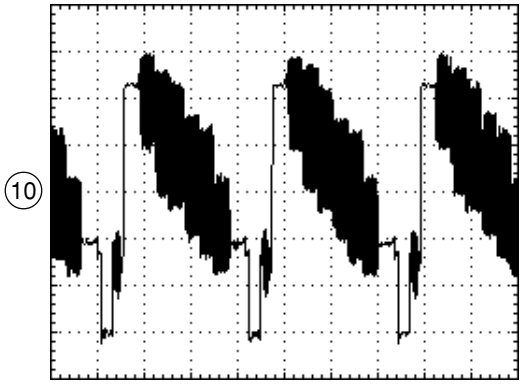
⑧ IC301 Pin 34 (32FH VCO)



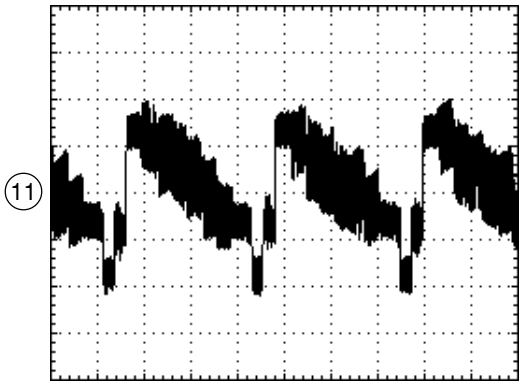
(9) IC301 Pin 43 (Y IN)



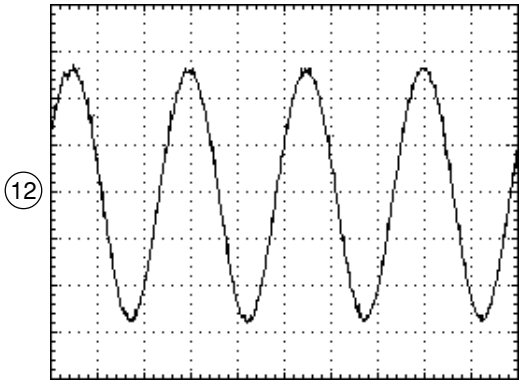
(10) IC301 Pin 45 (CHROMA IN)



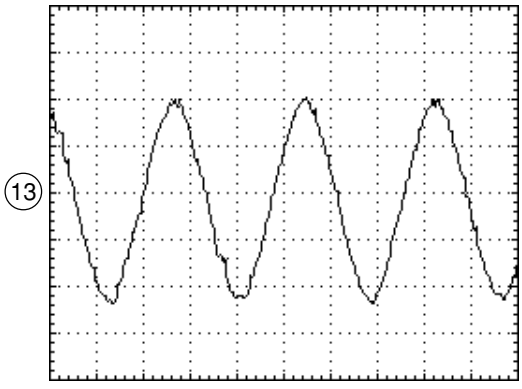
(11) IC301 Pin 47 (TV DET OUT)



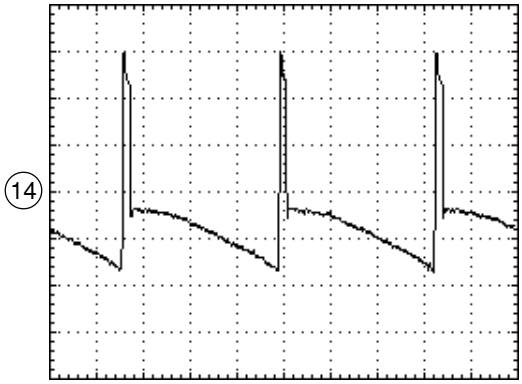
(12) IC301 Pin 54 (DE EMPHASIS)



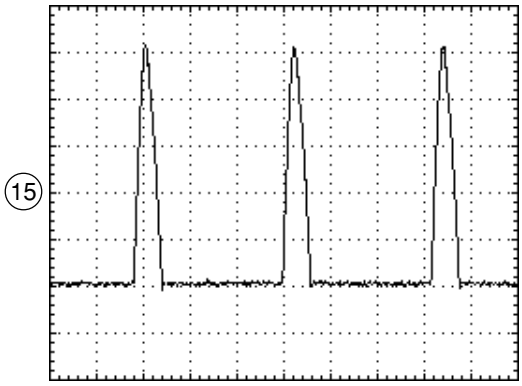
(13) Between X301 & C309 (VCXO)



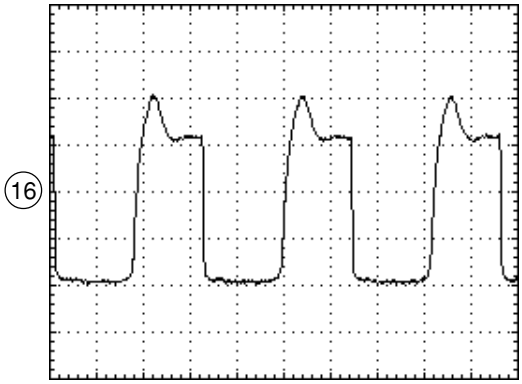
(14) IC501 Pin 2 (V-OUT)



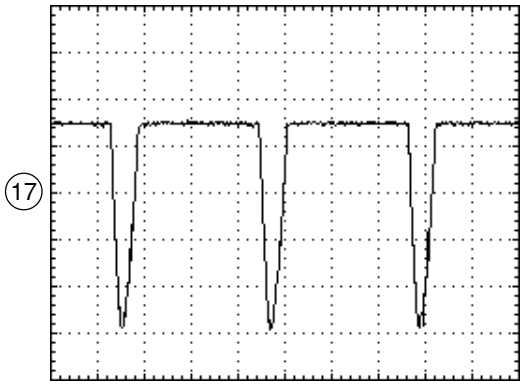
(15) Q601 Collector



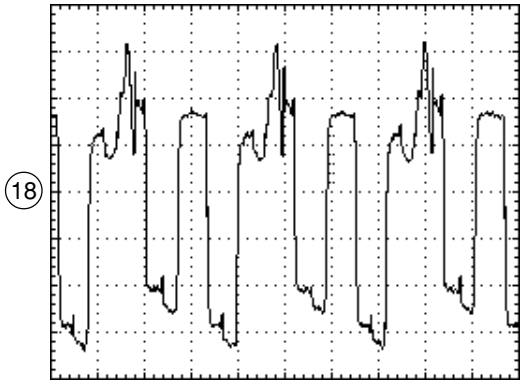
(16) Q602 Collector



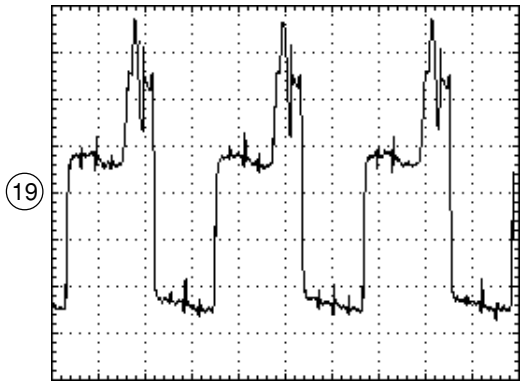
(17) T601 Pin 8 (E24)



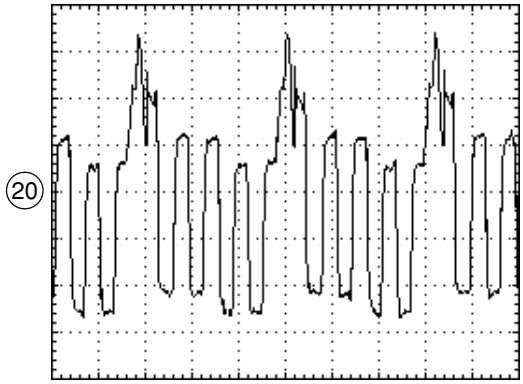
(18) Q901 Collector (R) --- NK C.B



(19) Q902 Collector (G) --- NK C.B



(20) Q903 Collector (B) --- NK C.B



IC DESCRIPTION
IC, M37272M8-165SP

<table>
<tr><th>Pin No.</th><th>Pin Name</th><th>I/O</th><th>Description</th></tr>
<tr><td>1</td><td>$\overline{HD}$</td><td>I</td><td>OSD horizontal synchronised signal input terminal. "L"= active.</td></tr>
<tr><td>2</td><td>$\overline{VD}$</td><td>I</td><td>OSD vertical synchronised signal input terminal. "L"= active.</td></tr>
<tr><td>3</td><td>A MUTE</td><td rowspan="2">O</td><td rowspan="2">Used to mute line out sound and picture when no input signal is detected. "H" to mute.</td></tr>
<tr><td>4</td><td>L MUTE</td></tr>
<tr><td>5</td><td>A DET OUT</td><td>O</td><td>Not used.</td></tr>
<tr><td>6</td><td>SW/SBASS</td><td>O</td><td>SBASS ON "L", OFF "H".</td></tr>
<tr><td>7</td><td>SEL1</td><td>O</td><td rowspan="2">Selecting tuner receiving band.
<table><tr><th></th><th>Pin 7</th><th>Pin 8</th></tr><tr><td>TUNER</td><td>L</td><td>L</td></tr><tr><td>VIDEO 1</td><td>L</td><td>H</td></tr><tr><td>VIDEO 2</td><td>H</td><td>L</td></tr></table>Reset start : Both of Pin 7, Pin 8 are "H".</td></tr>
<tr><td>8</td><td>SEL2</td><td>O</td></tr>
<tr><td>9</td><td>SP MUTE</td><td>O</td><td>Used to mute the speaker (sound) output.</td></tr>
<tr><td>10</td><td>$\overline{REMOCON}$</td><td>I</td><td>Remote control signal is led to this pin.</td></tr>
<tr><td>11</td><td>$\overline{SD}$</td><td>I</td><td>Horizontal sync. detected input. The level of this pin will be sampled by µ-P to determine whether there is picture signal detected.</td></tr>
<tr><td>12</td><td>$\overline{EXT}$</td><td>I</td><td>I²C switching.</td></tr>
<tr><td>13</td><td>PON</td><td>O</td><td>During standby mode, "H" level is inserted to switch off horizontal deflection and high voltage.</td></tr>
<tr><td>14</td><td>A VCC</td><td>–</td><td>5V supply.</td></tr>
<tr><td>15</td><td>HLF</td><td>–</td><td>Connected to filter.</td></tr>
<tr><td>16</td><td>V HOLD</td><td>–</td><td>Connected to condensor.</td></tr>
<tr><td>17</td><td>CV IN</td><td>I</td><td>Video signal input.</td></tr>
<tr><td>18</td><td>CNVSS</td><td>–</td><td>Connected to ground.</td></tr>
<tr><td>19</td><td>XIN</td><td>I</td><td>8 MHz clock input.</td></tr>
<tr><td>20</td><td>XOUT</td><td>O</td><td>8 MHz clock output.</td></tr>
<tr><td>21</td><td>VSS</td><td>–</td><td>Connected to ground.</td></tr>
<tr><td>22</td><td>VCC</td><td>–</td><td>5 V supply.</td></tr>
<tr><td>23</td><td>BBE 1</td><td>O</td><td rowspan="2"><table><tr><th></th><th>Pin 23</th><th>Pin 24</th></tr><tr><td>OFF</td><td>L</td><td>L</td></tr><tr><td>LOW</td><td>H</td><td>L</td></tr><tr><td>HIGH</td><td>H</td><td>H</td></tr></table></td></tr>
<tr><td>24</td><td>BBE 2</td><td>O</td></tr>
<tr><td>25</td><td>$\overline{RST}$</td><td>I</td><td>Used to reset the µ-P when power up.</td></tr>
<tr><td>26</td><td>D DET A</td><td>I</td><td>Connected to ground through a resistor.</td></tr>
<tr><td>27</td><td>D DET F</td><td rowspan="2">I</td><td rowspan="2">Fault detection. Detect as a fault when the voltage is more than 2.5V.</td></tr>
<tr><td>28</td><td>D DET R</td></tr>
<tr><td>29</td><td>AFTV</td><td>I</td><td>AFT voltage from IC301 is received by µ-P during channel tuning.</td></tr>
<tr><td>30</td><td>KEY</td><td>I</td><td>Input key is detected by monitor.</td></tr>
<tr><td>31</td><td>SDA2</td><td>I/O</td><td>I²C bus CH2 data.</td></tr>
<tr><td>32</td><td>SDA1</td><td>I/O</td><td>I²C bus CH1 data.</td></tr>
<tr><td>33</td><td>SCL2</td><td>I/O</td><td>I²C bus CH2 clock.</td></tr>
<tr><td>34</td><td>SCL1</td><td>I/O</td><td>I²C bus CH1 clock.</td></tr>
</table>

Pin No.	Pin Name	I/O	Description
35	S OUT	O	Not used.
36	QSUR	O	Surround ON "H", OFF "L".
37	$\overline{\text{LED}}$	O	LED ON "L", OFF "H".
38	WP	O	E^2PROM write protect.
39	FAST BLK	O	OSD blanking output.
40	B	O	OSD blue output.
41	G	O	OSD green output.
42	R	O	OSD red output.

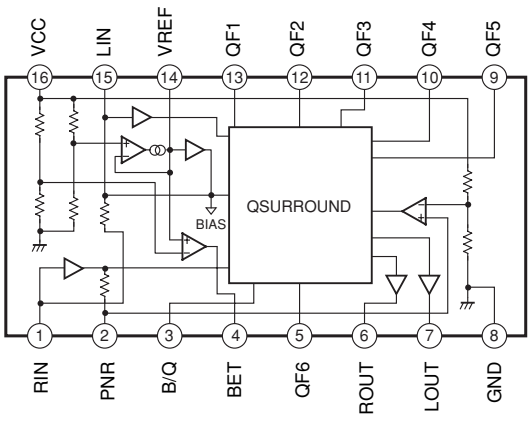
IC, TA1268N

Pin No.	Pin Name	I/O	Description
1	NC	–	Not connected.
2	AUDIO OUT	O	Sound output. The maximum flew out current is 3.6mA. So, the minimum load resistor is 1kΩ. (Not used)
3	RF AGC	O	RF AGC output.
4	SIF TANK	–	Tank coil connection for SIF detection circuit.
5	AGC FILT	–	PIF 2nd AGC filter.
6	PIF GND	–	GND for PIF circuit.
7 ~ 8	PIF IN	I	IF input. The typical input value is 90dBμV.
9	PIF VCC	–	VCC for PIF circuit.
10	LOOP FILT	–	PIF PLL loop filter.
11	APC FILT	–	APC filter of f_{sc} oscillation.
12	VCXO	I	X'tal of 3.58MHz VCXO.
13	GND	–	V/C/D GND.
14	FAST BLANKING	I	Fast blanking of RGB input.
15	R IN	I	R signal input.
16	G IN	I	G signal input.
17	B IN	I	B signal input.
18	D VCC	–	VCC for digital circuit.
19	R OUT	O	R primary color signal output.
20	G OUT	O	G primary color signal output.
21	B OUT	O	B primary color signal output.
22	V OUT	O	Vertical pulse output.
23	NFB	I	NFB input.
24	V RAMP	O	Vertical ramp output.
25	V SEPA FILT	–	Vertical sync. separation filter.
26	H VCC	–	VCC for horizontal circuit.

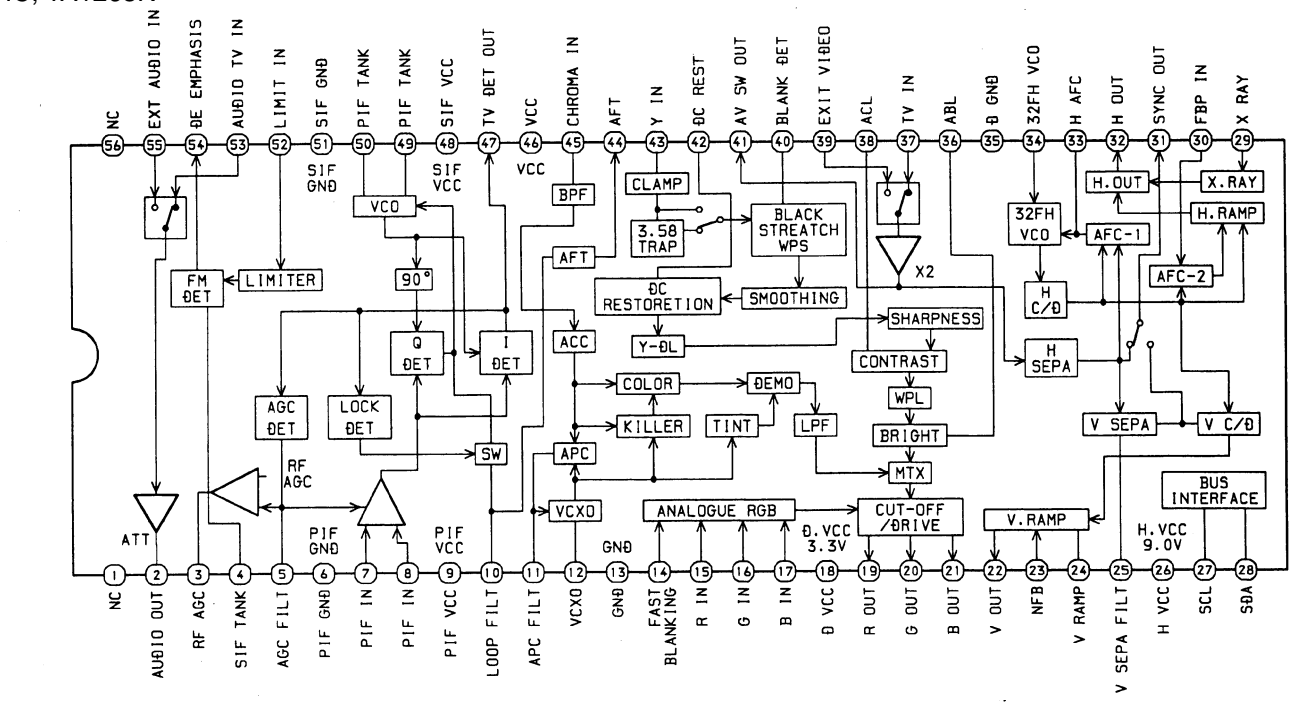
<table>
<tr><th>Pin No.</th><th>Pin Name</th><th>I/O</th><th>Description</th></tr>
<tr><td>27 ~ 28</td><td>SCL, SDA</td><td>I/O</td><td>Input and output of I²C Bus.</td></tr>
<tr><td>29</td><td>X RAY</td><td>I</td><td>Inputting of X-RAY protect circuit. The threshold voltage is 3.5V (typ.).
If the voltage that is applied is more than the threshold voltage, the X-RAY protect circuit make horizontal output a low.</td></tr>
<tr><td>30</td><td>FBP IN</td><td>I</td><td>Fly-back pulse input. The Fly-back pulse is the reference of AFC circuit, gate pulse and so on. The current needs to keep under 1mA.</td></tr>
<tr><td>31</td><td>SYNC OUT</td><td>O</td><td>Sync. pulse output.</td></tr>
<tr><td>32</td><td>H OUT</td><td>O</td><td>Horizontal pulse output.</td></tr>
<tr><td>33</td><td>H AFC</td><td>–</td><td>Horizontal AFC filter. The AFC circuit fits the phase between inputted horizontal sync. signal and horizontal pulse which is made by countdowning $32f_H$.</td></tr>
<tr><td>34</td><td>32FH VCO</td><td>–</td><td>Ceramic oscillator connection. That constitutes $32f_H$ (503kHz) oscillation circuit.</td></tr>
<tr><td>35</td><td>D GND</td><td>–</td><td>GND for digital circuit.</td></tr>
<tr><td>36</td><td>ABL</td><td>O</td><td>ABL circuit.</td></tr>
<tr><td>37</td><td>TV IN</td><td>I</td><td>Inputting of PIF detected signal. The typical input amplitude is 1.0Vp-p.</td></tr>
<tr><td>38</td><td>ACL</td><td>O</td><td>ACL circuit.</td></tr>
<tr><td>39</td><td>EXT VIDEO</td><td>I</td><td>Inputting of external video signal.</td></tr>
<tr><td>40</td><td>BLANK DET</td><td>–</td><td>Filtering of black peak detection.</td></tr>
<tr><td>41</td><td>AV SW OUT</td><td>O</td><td>Video switch output which selects TV signal or external video.
Amp gain: Min. 1.7, Typ. 1.9, Max. 2.1.</td></tr>
<tr><td>42</td><td>DC REST</td><td>I</td><td>Filtering of APL detection.</td></tr>
<tr><td>43</td><td>Y IN</td><td>I</td><td>Y signal input. The typical input amplitude is 1.0Vp-p.</td></tr>
<tr><td>44</td><td>AFT</td><td>O</td><td>AFT output. Monitor signal output can be selected via Bus.
<table><tr><th>B0</th><th>B1</th><th>OUTPUT</th></tr><tr><td>0</td><td>0</td><td>AFT</td></tr><tr><td>0</td><td>1</td><td>TEST purpose only</td></tr><tr><td>1</td><td>0</td><td>B</td></tr><tr><td>1</td><td>1</td><td>(RF AGC)/2</td></tr></table></td></tr>
<tr><td>45</td><td>CHROMA IN</td><td>I</td><td>Chrominance signal input. The typical input signal amplitude is 286mVp-p (at burst signal). This IC will go to test mode when this terminal voltage is higher than 4.5V.</td></tr>
<tr><td>46</td><td>VCC</td><td>–</td><td>VCC for video, chroma and deflection circuit.</td></tr>
<tr><td>47</td><td>TV DET OUT</td><td>O</td><td>PIF detected signal output.</td></tr>
<tr><td>48</td><td>SIF VCC</td><td>–</td><td>VCC for SIF circuit.</td></tr>
<tr><td>49 ~ 50</td><td>PIF TANK</td><td>–</td><td>Tank coil connection for PIF detection circuit.</td></tr>
<tr><td>51</td><td>SIF GND</td><td>–</td><td>GND for SIF circuit.</td></tr>
<tr><td>52</td><td>LIMIT IN</td><td>I</td><td>Inputting of SIF limiter amplifier circuit.</td></tr>
<tr><td>53</td><td>AUDIO TV IN</td><td>I</td><td>Inputting of SIF detected signal. (Not used)</td></tr>
<tr><td>54</td><td>DE-EMPHASIS</td><td>O</td><td>Filtering of SIF de-emphasis.</td></tr>
<tr><td>55</td><td>EXT AUDIO IN</td><td>I</td><td>External audio input. (Not used)</td></tr>
<tr><td>56</td><td>NC</td><td>–</td><td>Not connected.</td></tr>
</table>

IC BLOCK DIAGRAM

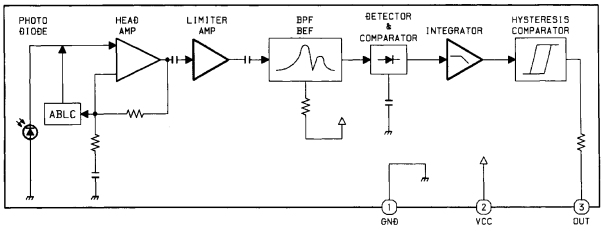
IC, MM1454XD



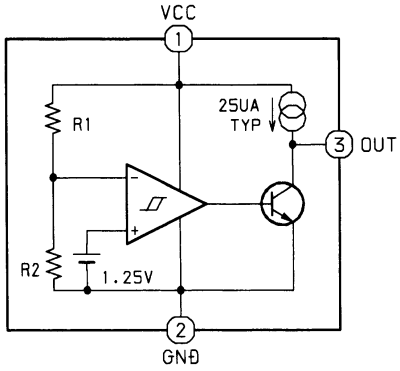
IC, TA1268N



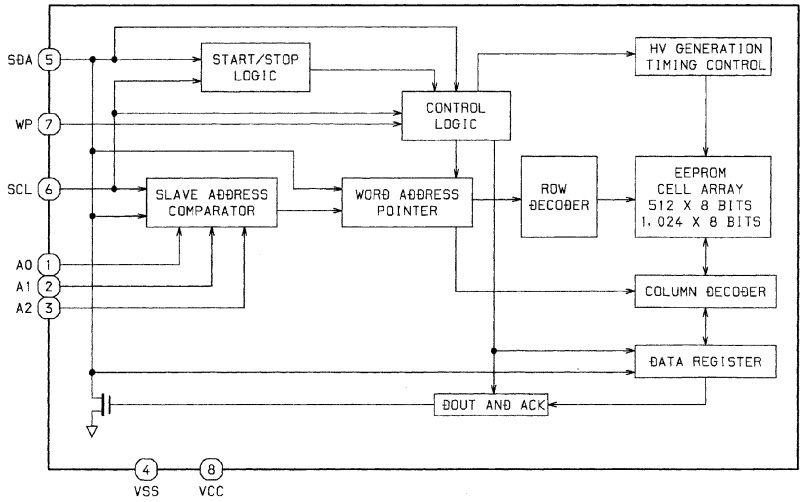
IC, SBX1981-72P



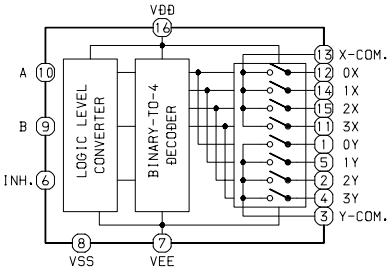
IC, M51943BSL-700A



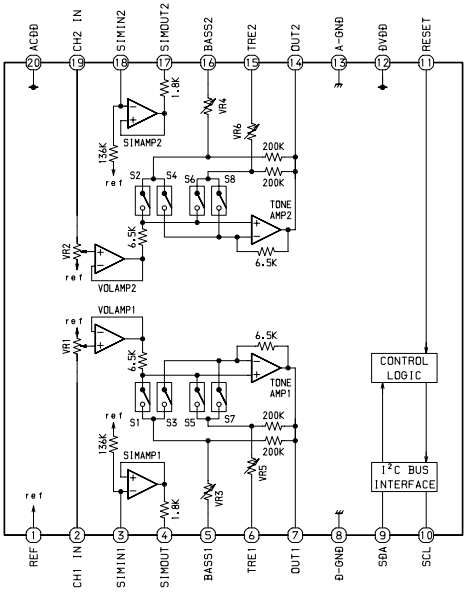
IC, KS24C041I



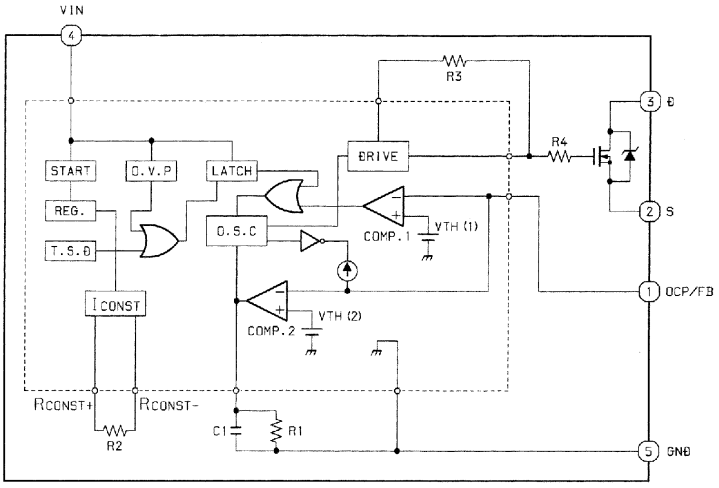
IC, TC4052BP



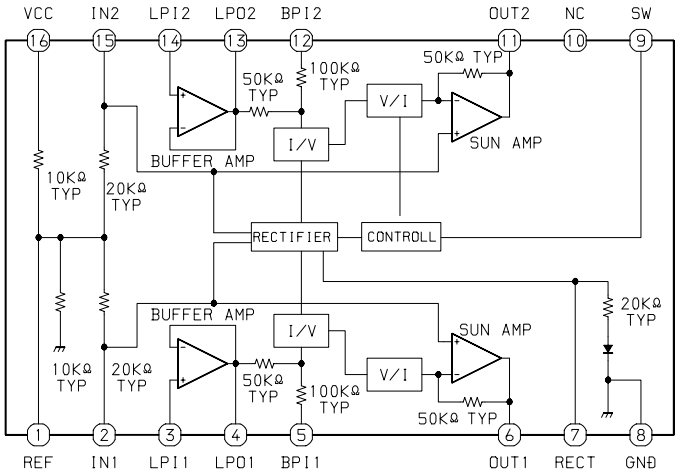
IC, M62420SP



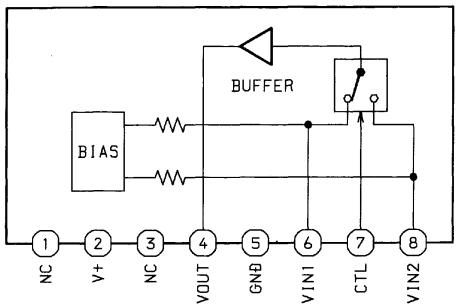
IC, STR-F6656



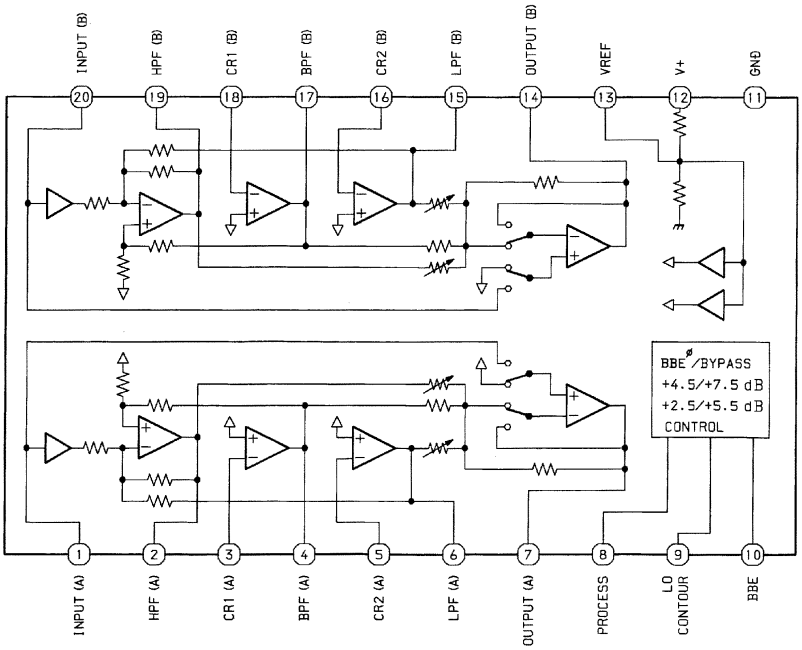
IC, MM1124B



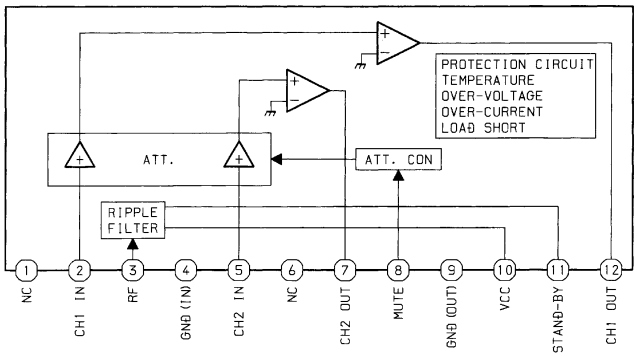
IC, NJM2233BL



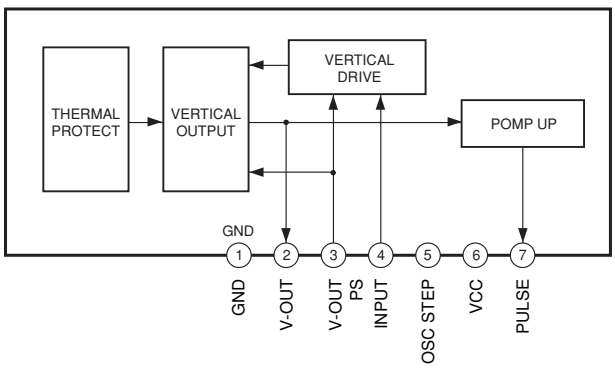
IC, NJM2150



IC, AN5277

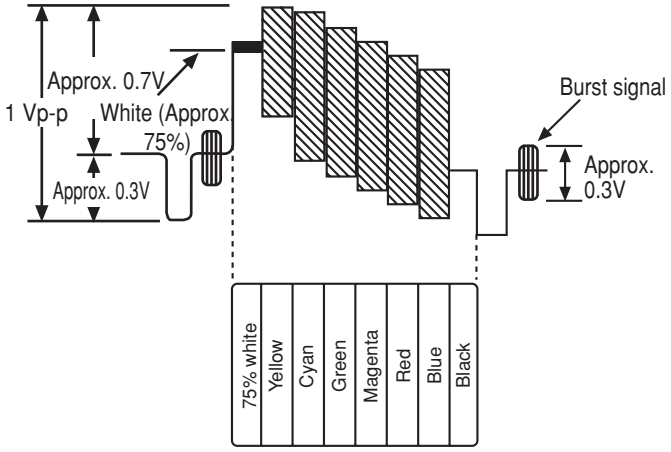


IC, LA7832



SET-UP FOR ADJUSTMENT

Because the video signal output from a pattern generator is used as the adjustment signal input during adjustment, the video signal output from the pattern generator must conform with the specifications. Measure the output waveform across 75 Ω load. Confirm that the synchronizing signal has an amplitude of about 0.3 V, the video signal portion has an amplitude of about 0.7 V and the burst signal has an amplitude of about 0.3 V with flat envelope. Confirm that ratio of the burst signal amplitude and the red signal amplitude is 0.30 : 0.66. If the output signal does not conform with the specifications, calibrate the pattern generator. (Refer to pattern generator operation manual.)
Use the LEADER: LCG 404 for the pattern generator.



TV display

Color bar signal of a pattern generator

Precautions before starting adjustment

Satisfy the following setting conditions before starting adjustment.

- Allow warm-up of 20 minutes or longer. (Do not turn off during warm-up.)
- Set all picture quality controls of users' setting to initial set-up, unless otherwise specified.
- Picture quality reset
  1. Select "Picture" on the screen menu and press enter button.
  2. Select "Normal" and press enter button.
  3. Select "Reset" and press enter button.
- Set the pattern generator's output level to 1.0Vp-p (across 75Ω load).

1. CRT ADJUSTMENT

1-1. Precautions

(1) Receive the white raster signal, and then perform aging for at least 20 minutes.
(2) Demagnetize the area surronding the CRT with a degausser before making adjustments.
(3) Set the picture quality for each mode to the factory setting.
(4) Position the front screen facing the east as much as possible.

1-2. Purpose

(1) Beam landing adjustment (purity magnet)
Set the left/right balance of beam landing. If there is a discrepancy in this adjustment, a color irregularity will occur. After completion of the landing adjustment, it is necessary to perform convergence adjustment.

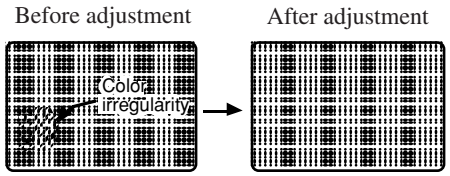
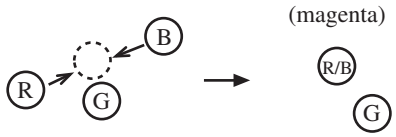


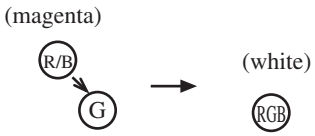
Fig. 1-1

(2) Beam convergence adjustment (4-pole magnet)
Align the R beam with the B beam. The G beam does not move with this adjustment.



Align the R beam with the B beam
Fig. 1-2

(3) Beam convergence adjustment (6-pole magnet)
With a 4-pole magnet align the G beam with the already aligned R/B beam.



Align the G beam with the R/B beam
Fig. 1-3

(4) The composition of each magnet is as shown in Fig. 1-4.
In making adjustments, rotate the lock ring clockwise (looking from the CRT's back screen) and disengage.
Be careful not to loose the lock ring too much. If the magnet assembly has become shifted during adjustments, secure it to the position in Fig. 1-4.

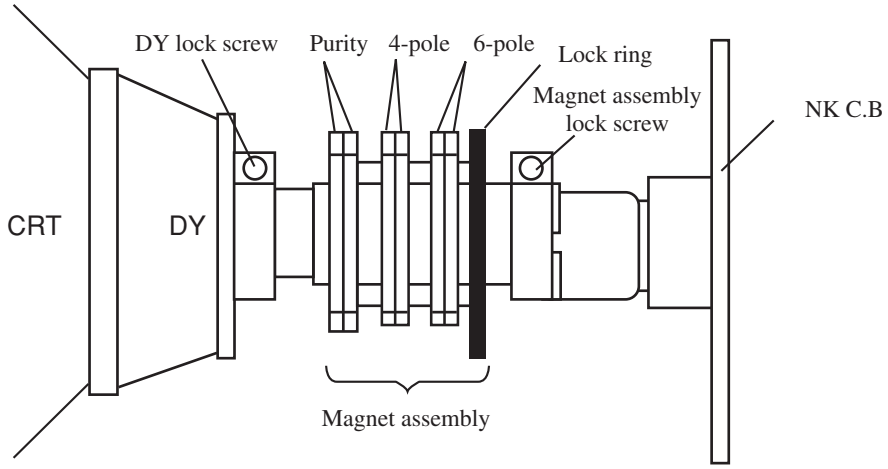


Fig 1-4

1-3. Beam Landing Adjustment

(1) Receive the green raster signal from the pattern generator.
(2) Loosen the magnet lock screw, and shift the magnet assembly backward (toward the neck).
(3) Loosen the DY lock screw, and shift the DY deflecting yoke backward (toward the neck).
(4) After opening the two purity magnets to the same angle, adjust the color width of the bands on both sides of the screen so that they are equal. (refer to Fig. 1-5 (a)).

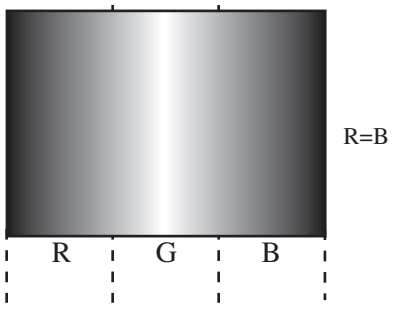


Fig 1-5 (a)

As shown in Fig. 1-5 (b), the purity magnet functions in relation to the electron beam.

(5) Gradually shift the deflecting yoke toward the front (toward the CRT funnel). Stop movement at the point when the screen has become completely green.

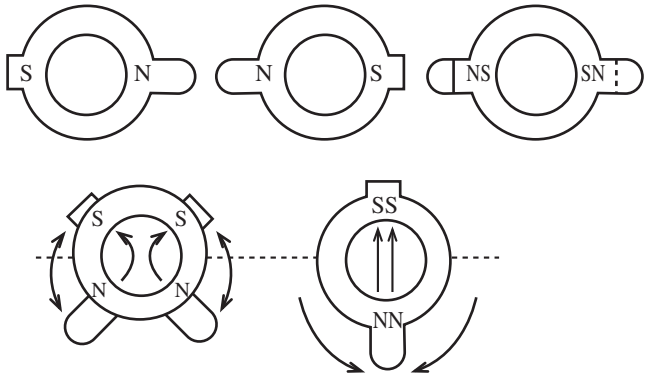


Fig 1-5 (b)

(6) Also, verify the respective monochromatics of red and blue.
(7) While looking at the screen, adjust the tilt of the deflecting yoke and tighten the DY lock screw.
(8) Shift the magnet assembly to the front (toward the CRT funnel), stop movement before the adjustment position and then tighten the magnet lock screw.
At this time, be careful not to shift the position of the purity magnet.

As there is occurrence of convergence distortion after completing the landing adjustments, be sure to carry out convergence adjustments.

If the color irregularities in the screen's corner section are not improved, correct them with the landing magnet. After using the landing magnet, be sure to demagnetize the CRT with degausser and verify that there is no occurrence of color irregularity. (refer to Fig. 1-6)

Landing magnet: 81-JTI-710-010
(two-sided adhesive tape) : 80-XVI-218-010 Cushion

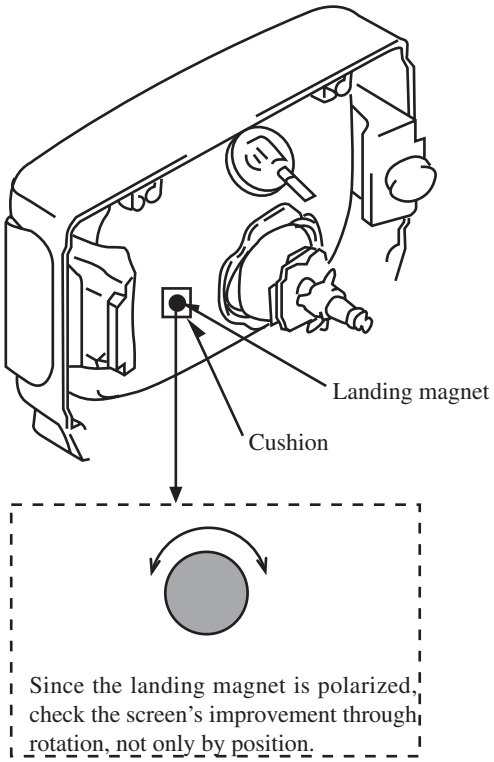

Landing magnet
Cushion
Since the landing magnet is polarized, check the screen's improvement through rotation, not only by position.

Fig 1-6

1-4. Beam Center Convergence Adjustment

Make adjustments on the convergence with 4-pole and 6-pole magnets. Operate each magnet in relation to the electron beam as shown in Figs. 1-7 and 1-8. When performing this adjustment, verify whether there is distortion in the focus adjustment. If necessary, carry out adjustments again.

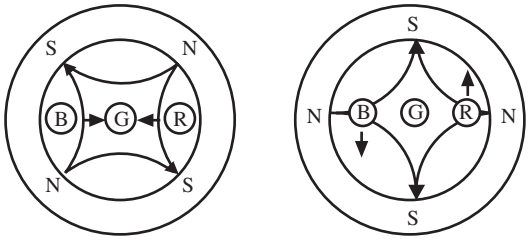


Fig 1-7

In Fig. 1-7, two 4-pole magnets are stacked together so as to be of the same polarity. Move the B and R beams to their respective direction, by rotating the two 4-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

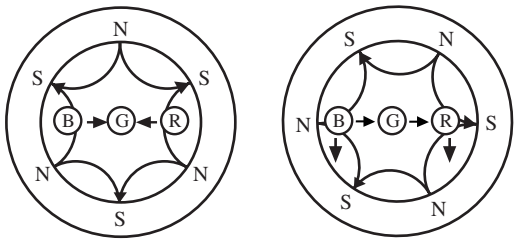


Fig 1-8

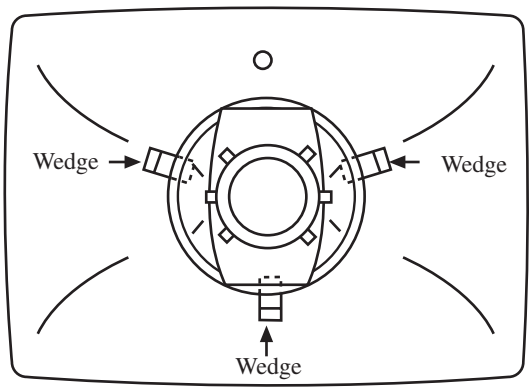
In Fig. 1-8, the two 6-pole magnets are stacked together so as to be of the same polarity. Move the B and R beams to their respective direction, by rotating the two 6-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

(1) Receive the dot pattern signal from the pattern generator.
(2) Pay attention to the center of the screen, and perform adjustments with two 4-pole magnets so that the R beam and B beam are perfectly aligned and become a magenta color. (Refer to Fig. 1-2)
(3) In the same way, pay attention to the screen, and perform adjustments with a 6-pole magnet so that the magenta beam and G beam are aligned and become a white dot. (Refer to Fig. 1-3)
(4) After adjustments are completed, secure all magnets with the lock link. (Refer to Fig. 1-4)

1-5. The Surrounding Convergence Adjustment

Perform this adjustment after completion of adjustment 1-4.

(1) Shake the deflecting yoke up, down to the right and left, and adjust any discrepancies in the screen's surroundings.
(2) Insert wedges in three locations in the gap between the deflecting yoke and the surface of the CRT funnel in order to secure the deflecting yoke. (Refer to Fig. 1-9)



Position of wedge

Fig. 1-9

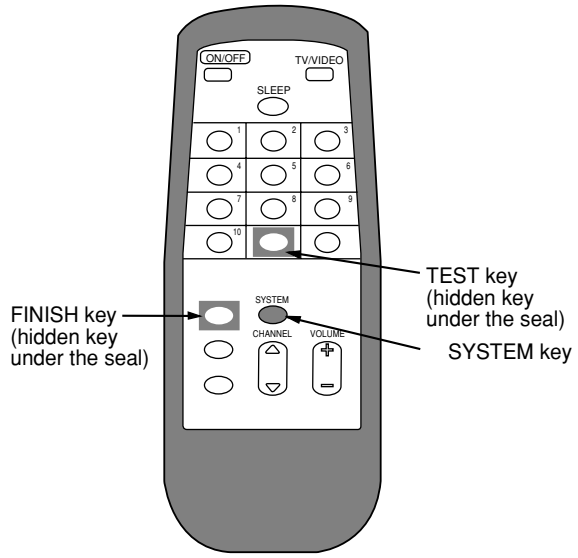
IC BUS Data Setting Procedure

With this model, most parts of video and deflection blocks can be adjusted using a jig remote control.

Preparations:

- Modify the hidden keys on the RC-6VT06 jig remote control (TV-C142/86-LB4-951-010) so that they can easily be pressed.

  2 keys to be modified (see the figure below):



Starting service mode:

Hidden key TEST:

- Pressing the TEST key on the jig remote control once will set the unit to the aging mode. See Fig. 1.
- Pressing TEST again will set the unit to the adjustment mode.

Hidden key FINISH:

- Pressing the FINISH key on the jig remote control will reset the accumulated hours in the aging mode.
- Do not press FINISH during normal servicing.

Aging mode operation method: Be sure to check this after replacing EEPROM.

1. Press the TEST key on the remote control to set to the aging mode. See Fig. 1.
2. Press the SYSTEM key to check the status of distinction switch. See Fig. 2.
   - If the contents are different, press the "1" key to select "IN-ST" for destination.
   - To modify the data, use the channel keys to move the cursor to 0-F, and then use the volume keys to change it to "0" or "1".

AGING AFT OK 000H

Fig. 1

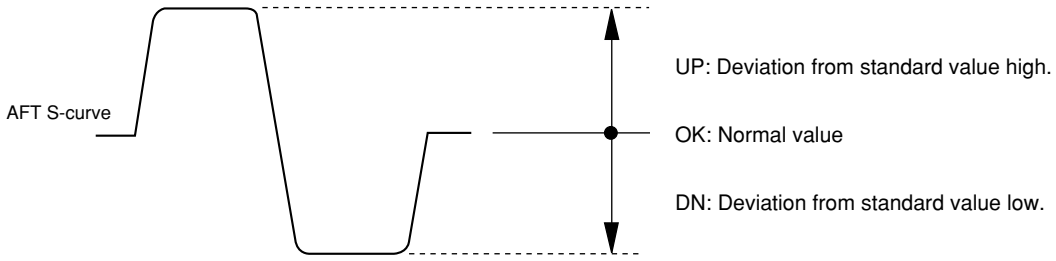
1 MONO
2 IN-ST
3 ST
4 ST+S
5 SPARE

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1	1	0	0	1	0	1	1	1	1	1	1	0	1	0	0

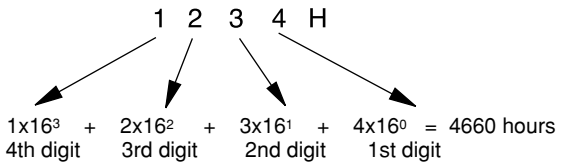
Fig. 2

Contents of aging mode:

1. Releasing auto power off function
   Release the auto power off function when no input is supplied. Use this mode for warming up (aging) during CRT adjustment.
2. AFT S-curve status display
   OK, UP or DN (down) will appear to show whether the AFT S-curve status is optimum, too high or too low.



3. CRT ON accumulated hour display
The CRT usage hours accumulate every hour, and are displayed using hexadecimal number.
Example of calculating displayed hexadecimal number:
AFT OK 1234H IN-ST



* When the accumulated hours exceed 7FFFH (32,768 hours), the display will be reset to 0000H.

Adjustment mode operation method:

1. Press the SYSTEM key to restore the aging display, and press the TEST key again to display the adjustment menu.

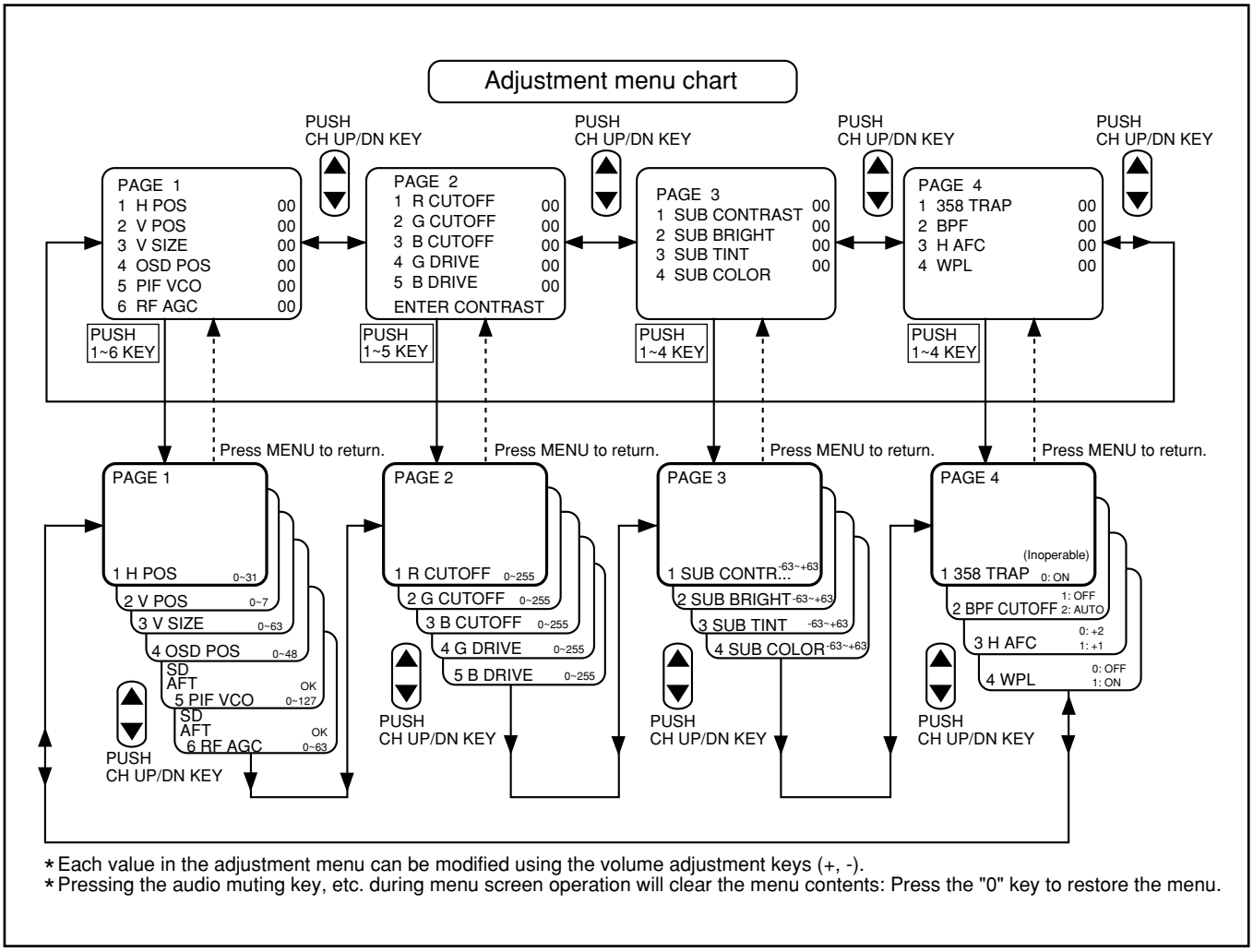
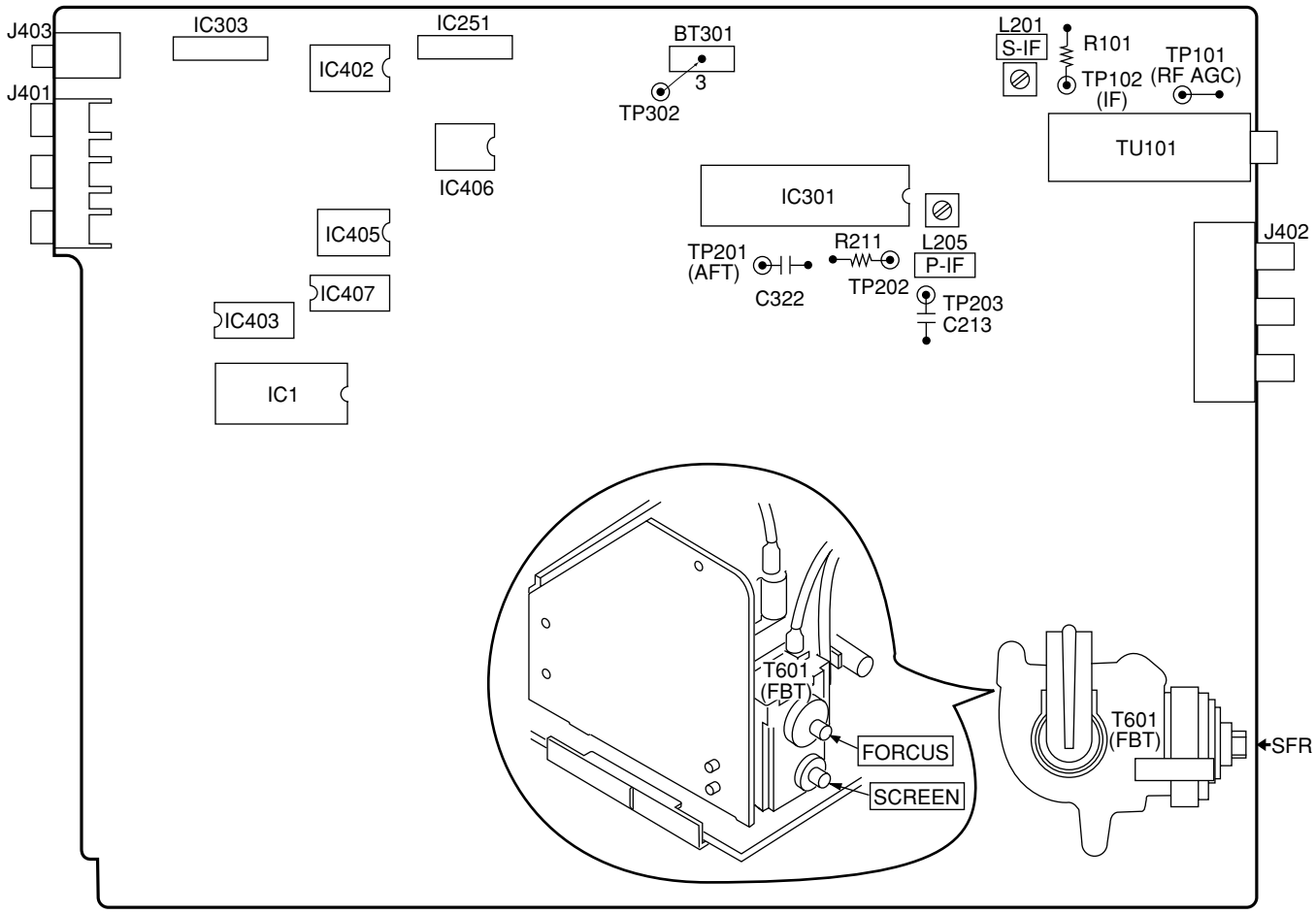
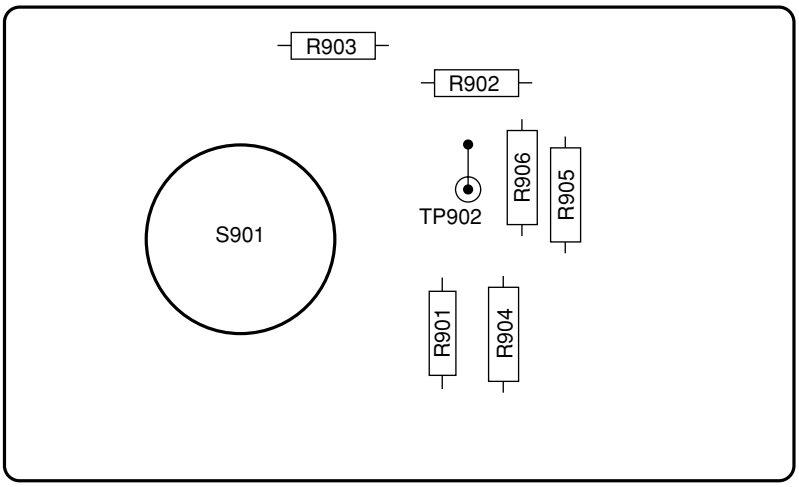

Adjustment menu chart
PUSH CH UP/DN KEY
PAGE 1
1 H POS 00
2 V POS 00
3 V SIZE 00
4 OSD POS 00
5 PIF VCO 00
6 RF AGC 00
PAGE 2
1 R CUTOFF 00
2 G CUTOFF 00
3 B CUTOFF 00
4 G DRIVE 00
5 B DRIVE 00
ENTER CONTRAST
PAGE 3
1 SUB CONTRAST 00
2 SUB BRIGHT 00
3 SUB TINT 00
4 SUB COLOR 00
PAGE 4
1 358 TRAP 00
2 BPF 00
3 H AFC 00
4 WPL 00
PUSH 1~6 KEY
PUSH 1~5 KEY
PUSH 1~4 KEY
PUSH 1~4 KEY
Press MENU to return.
1 H POS 0~31
2 V POS 0~7
3 V SIZE 0~63
4 OSD POS 0~48
SD AFT OK
5 PIF VCO 0~127
SD AFT OK
6 RF AGC 0~63
1 R CUTOFF 0~255
2 G CUTOFF 0~255
3 B CUTOFF 0~255
4 G DRIVE 0~255
5 B DRIVE 0~255
1 SUB CONTR... -63~+63
2 SUB BRIGHT -63~+63
3 SUB TINT -63~+63
4 SUB COLOR -63~+63
(Inoperable)
1 358 TRAP 0: ON
2 BPF CUTOFF 1: OFF 2: AUTO
3 H AFC 0: +2 1: +1
4 WPL 0: OFF 1: ON
* Each value in the adjustment menu can be modified using the volume adjustment keys (+, -).
* Pressing the audio muting key, etc. during menu screen operation will clear the menu contents: Press the "0" key to restore the menu.

Fig.3

MAIN C. B (Top View)



NK C. B (Top View)



- After replacing EEPROM, enter the following initial values before proceeding with adjustment.
- During normal servicing, check the applicable items, and adjust them if necessary.

	Initial value
PAGE 1	
1. H POS	20
2. V POS	2
3. V SIZE	18
4. OSD POS	6
5. PIF VCO	58
6. RF AGC	32
PAGE 2	
1. R CUT OFF	127
2. G CUT OFF	127
3. B CUT OFF	127
4. G DRIVE	127
5. B DRIVE	127
PAGE 3	
1. SUB CONTRAST	34
2. SUB BRIGHT	35
3. SUB TINT	0
4. SUB COLOR	16
PAGE 4	Specified value
1. 3.58 TRAP	ON
2. BPF	AUTO
3. H AFC	+1
4. WPL	OFF

1-1. H POS Horizontal position adjustment/Adjustment menu screen PAGE 1-1
Input signal: Crosshatch
Measuring instrument: Leader LCG-404 pattern generator
- Use the volume keys on the jig remote control to adjust so that the dot mark at the center of crosshatch is positioned at the horizontal center of screen and the squares on the left and right are equal. Fig. 1-1

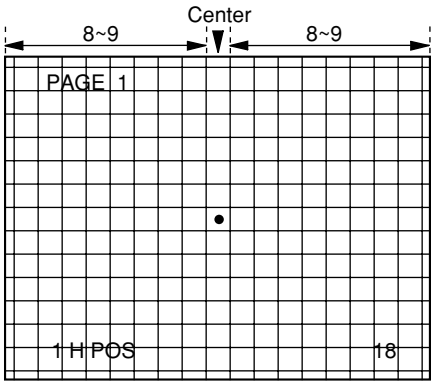


Fig.1-1

1-2. V POS Vertical position adjustment/Adjustment menu screen PAGE 1-2
Input signal: Crosshatch
Measuring instrument: Leader LCG-404 pattern generator
- Use the volume keys on the jig remote control to adjust so that the dot mark at the center of crosshatch is positioned at the vertical center of screen. Fig. 1-2

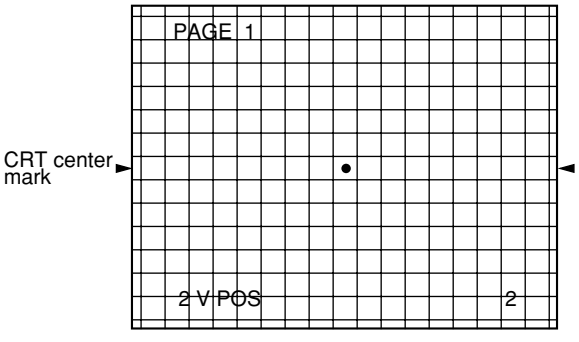


Fig.1-2

1-3. V SIZE Vertical size adjustment/Adjustment menu screen PAGE 1-3
Input signal: Crosshatch
Measuring instrument: Leader LCG-404 pattern generator
- Use the volume keys on the jig remote control to adjust so that the number of crosshatch squares in the vertical direction is 13-14. Fig. 1-3

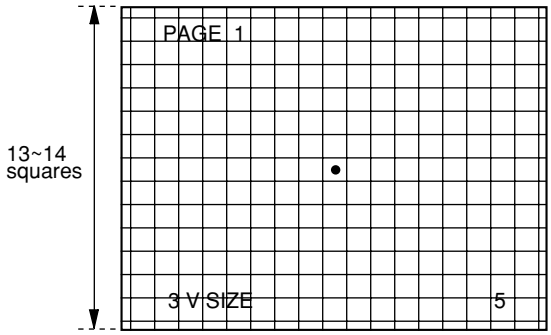


Fig.1-3

1-4. OSD POS OSD position adjustment/Adjustment menu PAGE 1-4
Input signal: Not specified
- Use the volume keys on the jig remote control to adjust so that both sides of OSD characters are equal to the length of edge of screen. A = B Fig. 1-4

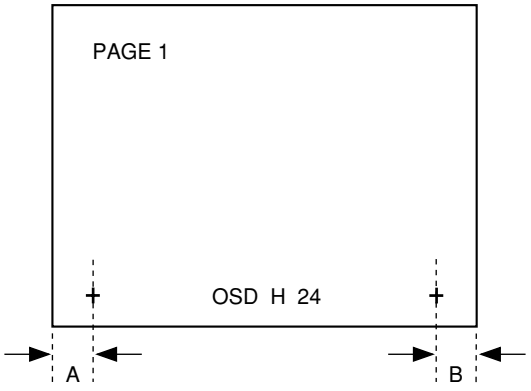


Fig.1-4

1-5. [PIF VCO] Video IF/VCO adjustment/Adjustment menu screen
PAGE 1-5
Input signal: ANT RF-INPUT
Color bar

- Measuring instruments: Leader LCG-404 pattern generator
  Use the volume keys on the jig remote control to adjust so that the AFT status on the screen is "OK". Fig. 1-5
- If there are several ranges where the AF status is acceptable, select the center value.

* "NG" will appear for SD when no signal appears on the screen, but this will not cause any problem for VCO adjustment (example: No signal with video input). Even in this case, adjustment is possible if there is a load on ANT.

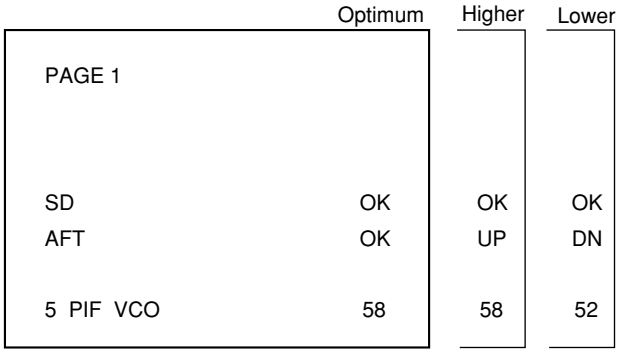


Fig.1-5

1-6. [RF AGC] RF-AGC adjustment/Adjustment menu screen
PAGE 1-6
Input signal: ANT RF-INPUT
Color bar
Measuring instruments: Oscilloscope, Leader LCG-404 pattern generator
1. Connect the oscilloscope to TP-101.
2. Use the volume keys on the jig remote control to adjust so that the voltage at the test point is 3.5 ±0.3 V. Make sure that "OK" appears for AFT on the adjustment menu screen as shown in Fig. 1-6.

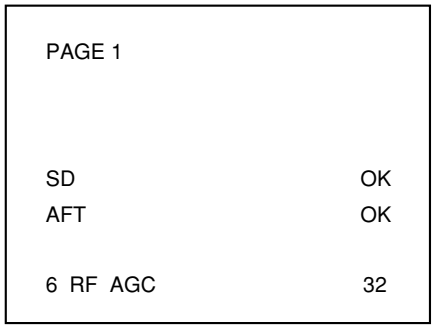


Fig.1-6

White Balance Adjustment:

Adjustment menu screen PAGEs 2-1~5
* When the adjustment menu screen appears, the user picture quality will be cleared.
Input signal: White raster
Details of adjustment: [1. R CUT OFF] [2. G CUT OFF] [3. B CUT OFF] [4. G DRIVE] [5. B DRIVE]
* Perform aging for at least 20 minutes before adjustment.
* Repeat all processes of adjustment several times.
Measuring instrument: Leader LCG-404 pattern generator

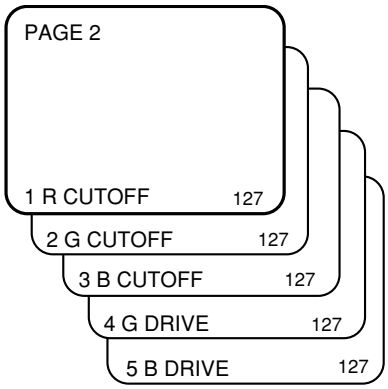


Fig. 2-1

Cutoff adjustment:

2-1. Use the pattern generator to input white raster signal.
2-2. Fix the cutoff value whose color seems to be most intense at 127, and use the volume keys on the jig remote control to adjust the other two cutoff values so that a white picture appears.

Drive adjustment:

2-3. Use the volume keys on the jig remote control to increase the [4. G DRIVE] value to 200 or more so that the picture is greenish.
2-4. Decrease the value gradually until green disappears.
2-5. Use the volume keys on the jig remote control to increase the [5. B DRIVE] value to 200 or more so that the picture is bluish.
2-6. Decrease the value gradually until blue disappears.
2-7. Perform steps 1-6 several times so that a white picture appears.

Focus Adjustment:

Input signal: Dot signal
Adjustment point: Upper SFR of FBT (T601)
Measuring instrument: Leader LCG-404 pattern generator

- Adjust the upper SFR of FBT (T601) until the focus of dots in the dot pattern is optimum.

Screen Adjustment:

Input signal: No signal (raster)
Adjustment point: Lower SFR of FBT (T601)
Measuring instrument: Leader LCG-404 pattern generator

1. Use the jig remote control to display the adjustment menu screen.
2. Press the "0" channel numeric key so that a horizontal single line appears. Fig. 2-2
3. Adjust the lower SFR of FBT (T601) until the horizontal single line starts to gleam.
4. Perform step (2) again to return to the adjustment menu screen.

Fig.2-2

3-1. SUB BRIGHT Sub-brightness adjustment / Adjustment menu screen PAGE 3-2 (make sure of the order)
Input signal: Color bar (stairstep)
Measuring instrument: Leader LCG-404 pattern generator

1. Use the volume keys on the jig remote control to adjust until the second step from the right gleams.

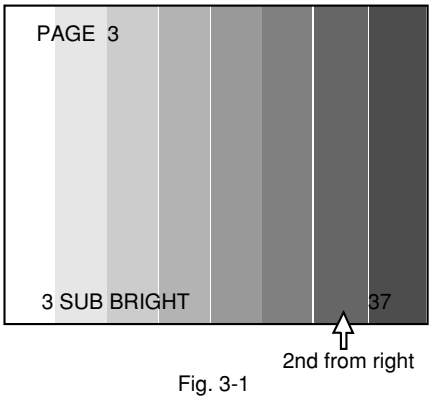


Fig. 3-1

3-2. SUB CONTRAST Sub-brightness adjustment / Adjustment menu screen PAGE 3-1
Input signal: Color bar (QIW) with chroma off
Measuring instruments: Oscilloscope
Leader LCG-404 pattern generator
Test point: TP902 on NK C.B.

1. Connect the oscilloscope to TP902.
2. Use the volume keys on the jig remote control to adjust so that the voltage to the pedestal level from 100% white is 80 ± 2.0 V, referring to Fig. 3-2.

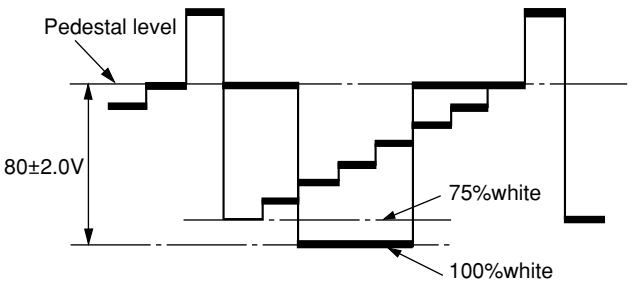


Fig. 3-2

3-3. SUB TINT Sub-tint adjustment/Adjustment menu screen PAGE 3-3
Input signal: Color bar
VIDEO IN
Measuring instruments: Oscilloscope
Leader LCG-404 pattern generator
Test point: TP302/BT301 (wire connector) pin (3)

1. Connect the oscilloscope to TP302.
2. Use the volume keys on the jig remote control to adjust so that the bottom edges of waveform are in one oblique line, referring to Fig. 3-3.

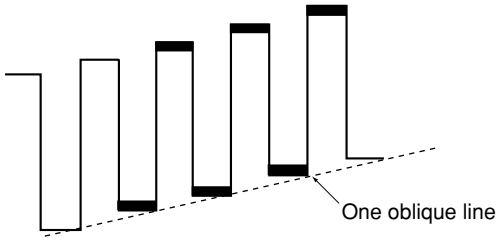


Fig. 3-3

3-4. SUB COLOR Sub-color adjustment/Adjustment menu screen PAGE 3-4
Input signal: Color bar
VIDEO IN
Measuring instruments: Oscilloscope
Leader LCG-401 pattern generator
Test point: TP302/BT301 (wire connector) pin (3)

1. Connect the oscilloscope to TP302.
2. Use the volume keys on the jig remote control to adjust so that the peaks of waveform are in one straight line, referring to Fig. 3-4.

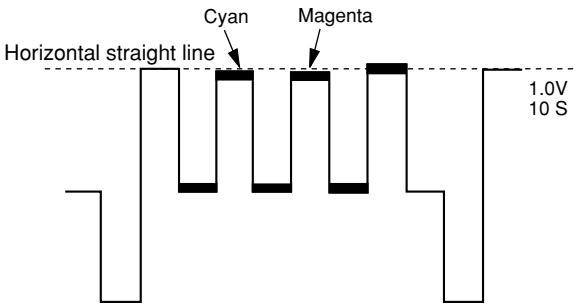


Fig. 3-4

4. TV SETTING CHECK Settings check for different models/ Adjustment menu screen PAGEs 4-1~4
The settings are fixed for each model: Do not change the settings to those other than specified.
• Check to see if the settings on the adjustment menu screen are the same as in Table 4.
If the settings are different, use the volume keys on the jig remote control to reset them.

3.58 TRAP	0: ON
BPF	2: AUTO
H AFC	1: +1
WPL	0: OFF

* The 3.58 TRAP setting cannot be modified.
Table 4

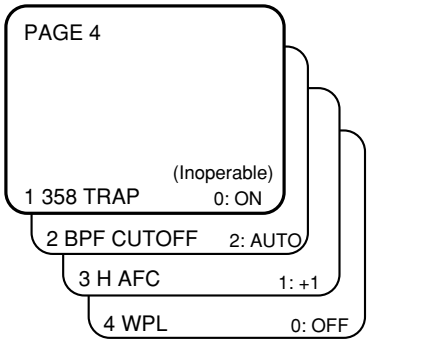


Fig. 4

Tuner Adjustment:

If adjustment element has been replaced as a result of repair, perform the following adjustments, and then proceed with adjustment using the adjustment menu screens.
If this adjustment is not complete, correct adjustment will not be possible with adjustment menu screens.
Components which cause the circuit status to change after repair:

- VCO coil
- SIF coil
- TRAP coil
- SEPARATION VR

5-1. VCO ADJUSTMENT VCO (PIF) adjustment/Video carrier frequency free-running adjustment
Input signal: RF-NTSC color bar:
Input level: 90 dBµV
BROADCAST CH/fc=45.75MHz
Mode: TUNER
Test points: Input: TP-102 IF (TU101 pin 11)
Output: TP-201 AFT (IC301 pin 44)
Adjustment point: L205/P-IF
Measuring instruments: Oscilloscope
Leader LCG-404 pattern generator

1. Connect the oscilloscope to TP-201.
2. Supply a specified level RF signal to TP-102, and adjust L205 so that the voltage at TP-201 is 2.8 ± 0.3 V DC.

5-2 SIF ADJUSTMENT Audio IF modulation adjustment
Input signal: AM/FM-SG RF OUT: 4.5MHz
MODE OFF
90 dBµV
With the smple adjustment method, receive an ordinary broadcast signal with simple adjustment.
Mode: TUNER
Test points: Input/TP-202: IC301 pin 52
Output/TP-203: IC301 pin 54
Adjustment point: L201/S-IF
Measuring instruments: Oscilloscope
AM/FM signal generator
1. Connect the oscilloscope to TP-203.
2. Tune in TV channel 2.
3. Supply a specified signal to TP-202, and adjust L201 so that the voltage at TP-203 is 4.5 ± 0.2 V DC.

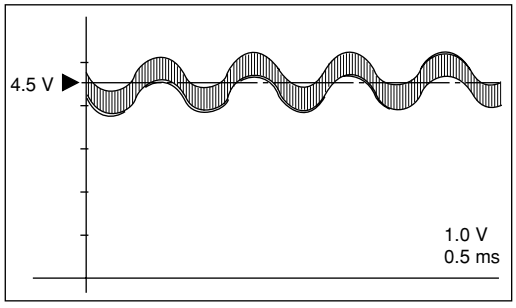
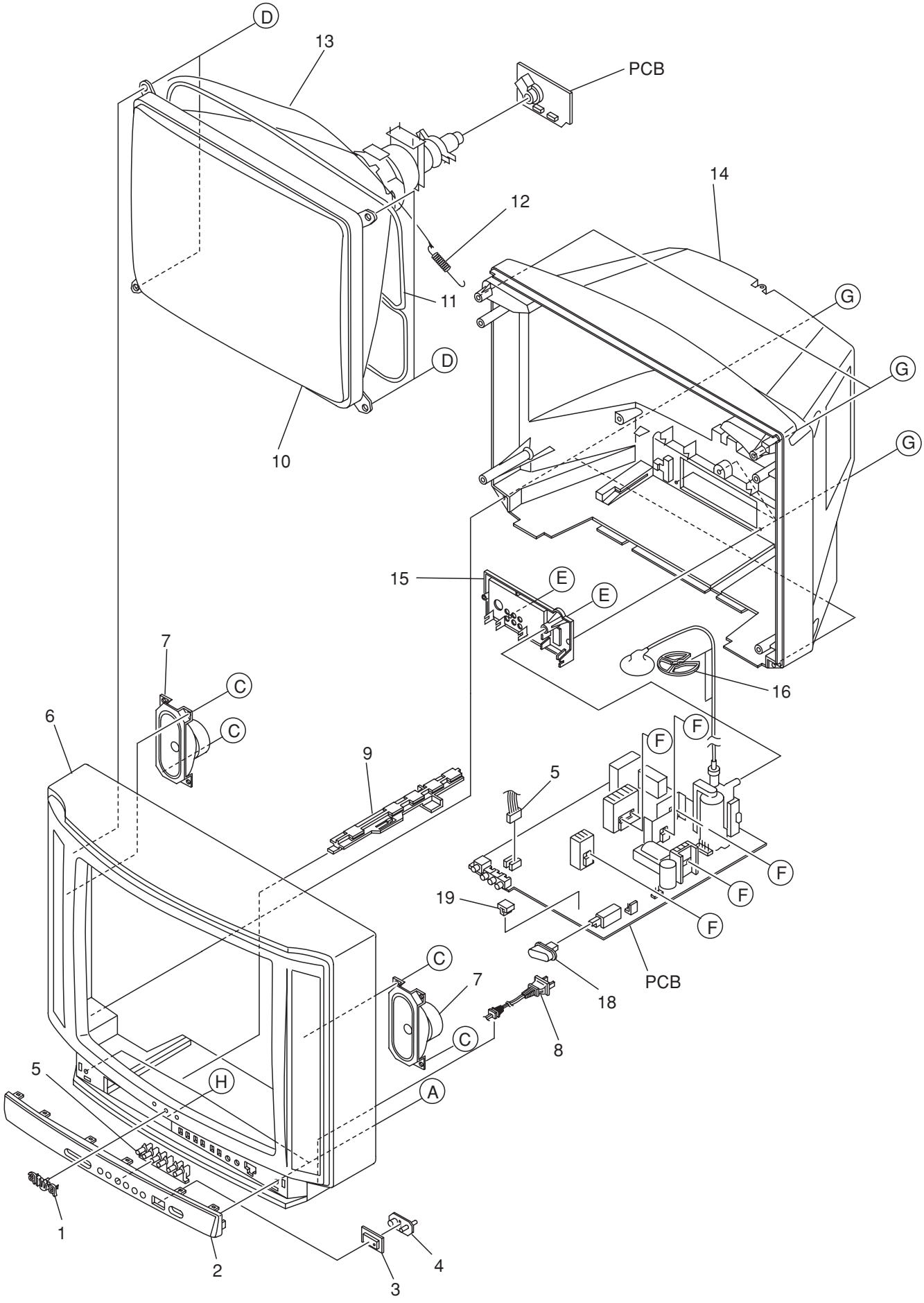


Fig.5-1

MECHANICAL EXPLODED VIEW 1/1



MECHANICAL MAIN PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	87-054-086-010		BADGE,AIWA 52.5
2	8Z-JAK-003-010		PANEL,MAIN AN2010 NH
3	8Z-JBR-005-010		LENS,RC
4	8Z-JBR-006-010		LENS,LED
5	8Z-JBR-004-010		KEY,MAIN
6	8Z-JBS-001-010		CABI,FR
7	8Z-JB4-620-010		SPKR,6*12 8OHM 10W
⚠ 8	8Z-JAD-620-010		AC CORD SET,NH BLK
9	8Z-JBR-201-010		HLDR,PCB 1
⚠ 10	87-JBD-606-010		CRT,A48LRH94X02(W)
⚠ 11	87-A50-557-010		DGC,20' 15 OHM-TYPE8
12	84-LB3-205-010		SPR-E,EARTH
13	84-LB2-633-110		CONN ASSY,1P CRT GND
14	8Z-JBR-002-010		CABI,REAR
15	8Z-JB5-010-010		PANEL,REAR SH
16	87-A90-332-010		HLDR,SF-2001 HV CABLE
18	8Z-JB5-007-010		BTN,POWER SH
19	84-LB3-216-010		HLDR,LED
A	87-067-680-010		BVI T3+3-10
C	87-078-070-010		BVIT3B+4-12
D	86-LBB-206-010		S-SCREW,ASSY TV5-40 W20
E	87-067-761-010		TAPPING SCREW, BVT2+3-10
F	87-067-579-010		TAPPING SCREW, BVT2+3-8
G	87-067-844-010		BVT2+4-16 BLK
H	87-067-690-010		TAPPING SCREW, BVIT3+3-12

COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange		

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737004 Printed in Singapore